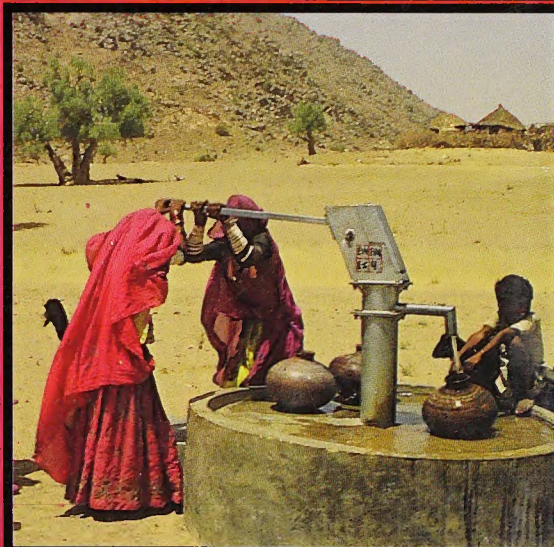
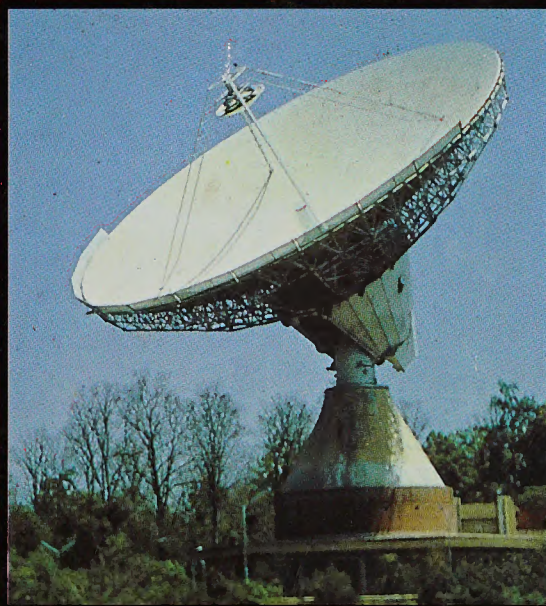
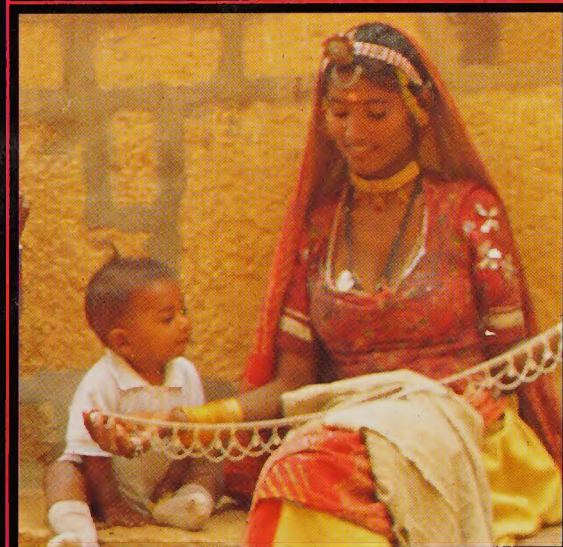
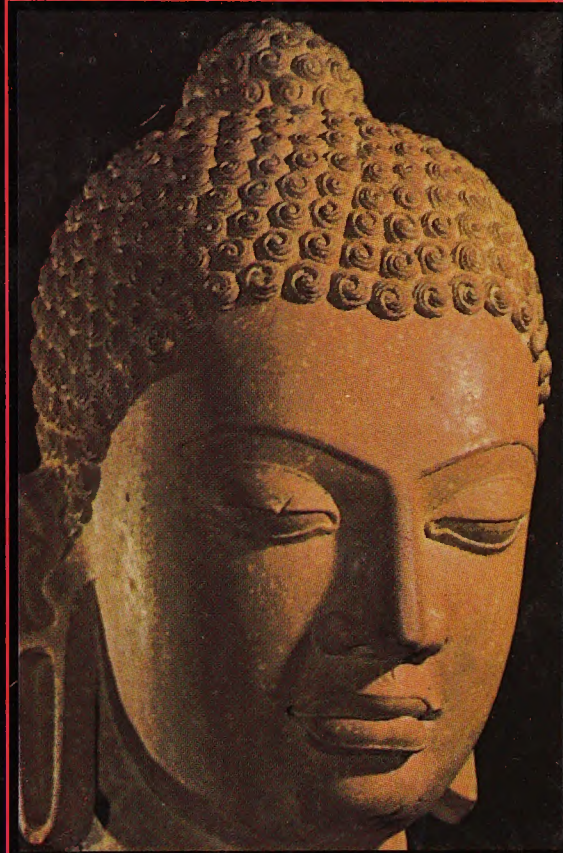


INDIA

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CONTINUITY IN CHANGE



India, a country of startling contrasts:

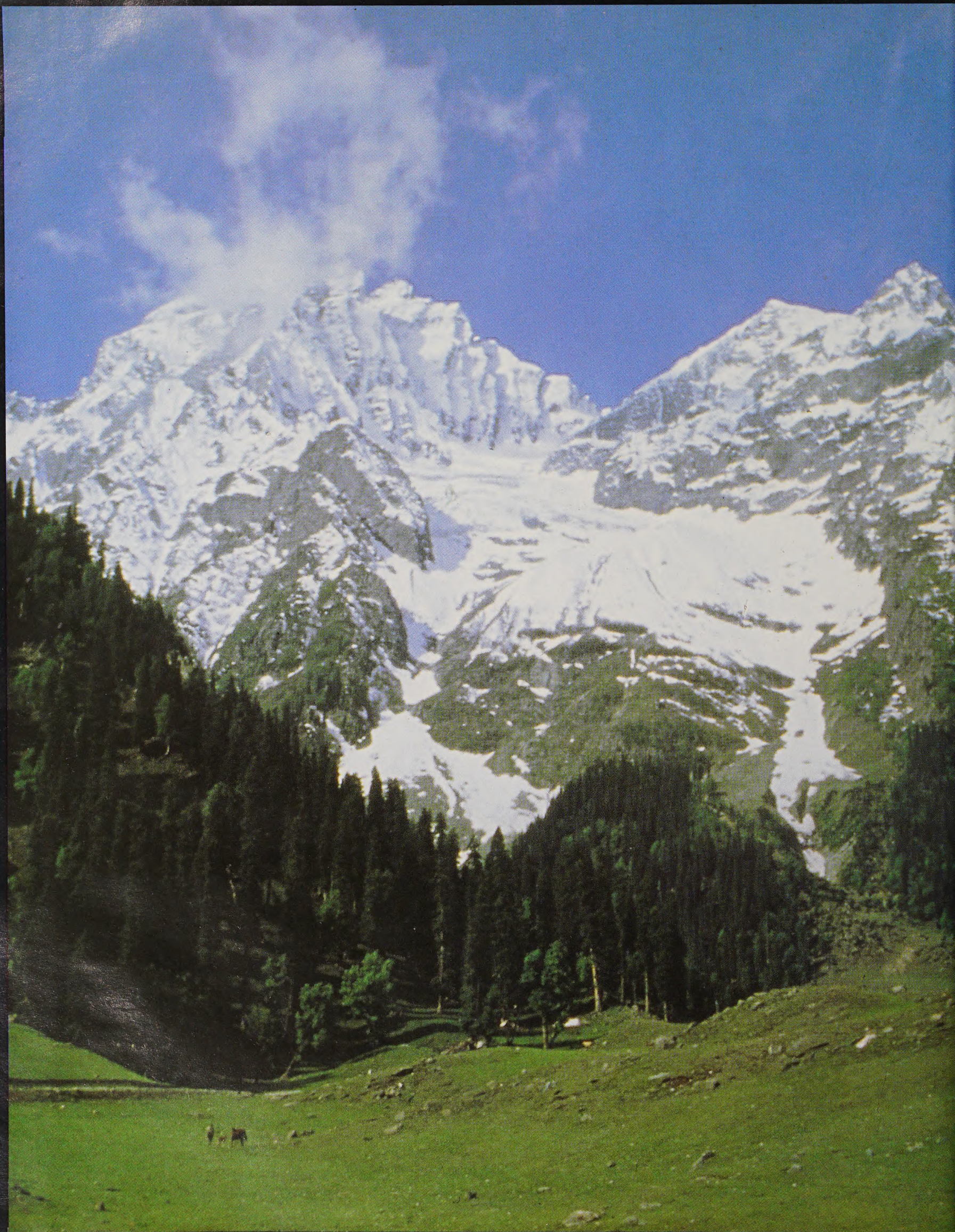
The breathtaking diversity of Indian civilisation springs from the land itself, snowbound mountains, tropical rainforests, arid deserts, fertile river valleys, dry scrublands and lush coastal plains, all have generated different lifestyles and cultures. Adding to this inherent diversity have been succeeding waves of migrants and invaders from beyond the northern mountains and the southern seas. Each has contributed fresh ethnic stock, language, religion and philosophy, technologies, customs and style of clothing, cuisine, architecture and art. Both the original and the immigrant cultures have been mutually enriched by their interaction, while retaining their own distinct identities. Overlaid on these are different stages of technological and economic progress, with indigenously produced satellites beaming news instantly to remote hamlets where time is still measured by the seasons. All these elements have combined to create a multi-dimensional tapestry of stunning richness and depth, as bewildering as it is compelling, as subtle as it is exuberant.

Yet the diverse threads of this living tapestry are woven together on an underlying canvas of shared experience and collective memory, over which the mighty Himalayas have stood sentinel down the centuries, preserving its geopolitical and cultural cohesiveness. This spirit of national unity was further tempered in its unique, non-violent struggle for freedom. India is the largest democracy in the world and an acknowledged leader of the Third World and the Non Aligned Movement. Since independence, the country has made impressive progress in the fields of agriculture, industry, science and technology, health, education and telecommunications. India's economic and trade policies seek to integrate the nation into the international economy and, aided by a vigorous growth in local people's initiatives, to tackle its many problems and face the twenty first century with optimism and confidence.

I N D I A

CONTINUITY IN CHANGE

EXTERNAL PUBLICITY DIVISION
MINISTRY OF EXTERNAL AFFAIRS, GOVERNMENT OF INDIA

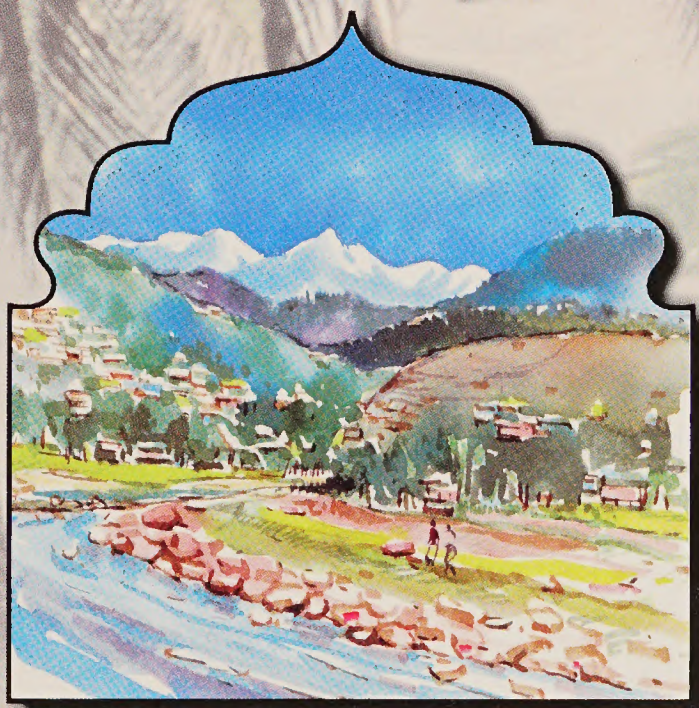




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Land and Environment

Land and Environment

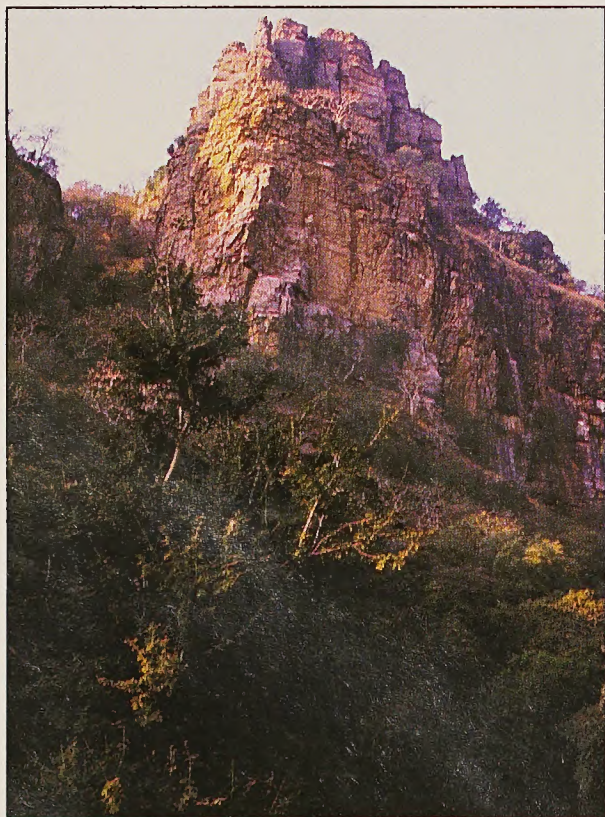
If one were to try to capture the essence of the entire Indian subcontinent in a single word, that word would surely be 'Diversity'. There is a breathtaking range in every aspect of the country, from the very topography of the land, down to the array of snacks at its wayside stalls. This variety is manifest both spatially, across the length and breadth of the land, and temporally, with stone-age tribes living in the shadow of atomic power plants. Overlaid on each other, one gets a multi-dimensional, many coloured tapestry of great richness and depth, as bewildering as it is beautiful, as subtle as it is exuberant.

Yet the diverse threads of this living tapestry are woven together on an underlying canvas of unifying shared experience and collective memory, which give the whole a unique flavour that is unmistakably 'Indian'. This unity too, permeates every level, from the geopolitical distinctiveness of the landmass, to the film music that reverberates from tea shops in every corner of the country.

The Land

The basis of this diversity is the land itself. Here we find the highest mountain range in the world, as well as the low-lying mangrove swamps of the Sunderbans which are daily submerged by the sea at high tide; to the west lie the sandy wastes of the Thar desert, while Mawsynram in the Garo hills of Meghalaya in the northeast is reputed to be the wettest spot on earth.

1. A rocky outcrop in the Aravalli Range



To the north, the Himalayas form an unbroken arc stretching 2400 kilometres from the Pamir Knot in the northwest to the valley of the Brahmaputra river in the east. These, the highest and youngest mountains in the world, were formed when part of the ancient, prehistoric continent of Gondwanaland collided with the main Asian landmass, lifting it into gigantic fold mountains, some 17 million years ago. Geologically speaking, this is a fairly recent event, and the Himalayas are still rising under the continuing northward thrust of what is now the Deccan plateau of peninsular India.

The towering Greater Himalayas rise over 6000 metres in spectacular jagged peaks that include Mt Everest in Nepal (8848 metres), the highest mountain in the world, and other giants such as Nanda Kot, Kanchenjunga and Nanda Devi. In contrast, the Deccan plateau is a stable mass of pre-Cambrian rock, parts of which are dated as 3.5 thousand million years old. It has been weathered over millenia by wind, water and temperature differences into soft, rounded contours bounded by remnant hills — the Vindhya, Aravalli and Satpura ranges to the north, and the Western and Eastern Ghats. The plateau slopes gently to the east, and is drained by 4 major rivers — the Mahanadi, Godavari, Krishna and Kaveri. These rivers have broken the Eastern Ghats into small, low hills, and their deltas have built up a relatively wide coastal plain bordering the Bay of Bengal. The Western Ghats fall steeply to a narrow coastal strip drained by many small streams running into the Arabian Sea, sometimes forming lovely inland lagoons and backwaters. The two

coasts meet at Kanya Kumari, the southernmost tip of India, at the confluence of the Bay of Bengal, the Arabian Sea and the Indian Ocean.

Between the Himalayas and the Deccan are the wide, flat and fertile Indo-Gangetic plains, formed by the silt carried down by the Himalayan rivers, and stretching 3330 kilometres between the two deltas. In the west, the five rivers of the Punjab, the Indus and its tributaries, the Ravi, Beas, Chenab and Sutlej, were the cradle of Indian civilisation. In the centre, the holy Ganga, worshipped as a manifestation of the Goddess, is joined by the Yamuna at the sacred confluence at Allahabad. These rich alluvial plains supported successive empires and sophisticated civilisations. The mighty Brahmaputra flows north of the Himalayas for most of its length, then suddenly turns south, breaks through the mountains and does a U-turn through the Assam valley, before joining the Ganga. The combined delta of these two rivers is the largest in the world, and meets the Bay of Bengal in the mangroves of the Sunderbans, or 'beautiful forests'. Far south of the Sunderbans, where the Bay of Bengal merges with the Indian Ocean, lie the hauntingly beautiful Andaman and Nicobar islands. The summits of a submerged chain of volcanic mountains, they are covered with luxuriant tropical rain forests. The coral atolls of the Lakshadweep islands lie in the Arabian sea, off the south-west Kerala coast. Their crystal blue lagoons offer the eye a feast of delicate corals and tropical marine life.

Diverse though the land is, the subcontinent forms a self-contained geographical unit, bounded by the mountains to the north, and by the seas to the south.



2. *Sunset on the Ganges*

3. *Bageshwar on the banks of the Sarayu river in the Kumaon hills*





4. *Bugyals or alpine meadows are a botanist's paradise. Panvalikantha valley in the Garhwal region*



5. *Clusters of luscious litchie — found in Bihar, Maharashtra, Gujarat, West Bengal and Dadra and Nagar Haveli*



Ecological Zones



6. A panoramic view of the Bharatpur bird sanctuary, host to many trans-Himalayan species in winter

The Indian landmass covers an area of about 3.3 million square kilometres, stretching 3214 kilometres north to south between latitudes 8° to 32° N. and some 3000 kilometres east to west. Inevitably, such a large area encompasses several climatic and ecological zones, from the perennial snows of the upper Himalayas, to the hot, humid tropical forests of the south-west coast, from the barren salt marshes of the Rann of Kutch in the west, to the fertile Brahmaputra valley in the east, from the extreme inland climate of the Indo-Gangetic plains, to the mild, equitable climes of the Deccan plateau.

The Himalayas actually consist of three parallel chains — the Greater Himalayas, rising above 6000 metres, the Lesser Himalayas with an average altitude of 3700 metres and the Sub-Himalayas between 900 to 1200 metres. These are separated by many jewel-like valleys, including the Kangra and Kulu ‘valleys of the gods’, and most famous of all, the Kashmir valley, of which a Mughal Emperor once said, “If there be a paradise on earth, it is this, it is this, it is this...”

Ascending from the valleys, one enters lush montane subtropical forests, veritable Gardens of Eden with a large variety of trees, ferns and flowering plants. Above 2000 metres montane temperate forests of oak are ablaze with the colour and fragrance of rhododendron and magnolia. At a height of 3000 metres one finds sub-alpine forests of lofty firs, pines and deodars, with a light undergrowth of ferns and bamboo thickets. Still higher up these give way to ‘bugyals’ or alpine meadows carpeted with wild flowers and wild strawberries, with the occasional dwarf trees and shrubs such as the silver oak.

The Himalayas are punctuated along their entire length by several passes such as the Zoji-La in Kashmir, the Rohtang and Bara Lacha-La in Himachal Pradesh, the Niti Pass in Uttar Pradesh, and the Nathu-La in Sikkim. As one treks up to these high passes, one is confronted by a striking contrast — behind one lie verdant valleys and wooded slopes, while ahead stretch mile upon mile of barren, frozen mountainous desert on the leeward side of the ranges. The landscape is truly awe-inspiring in its stark grandeur, reducing Man to insignificance; one can well believe the legends of mountain djinns and lost Shangrilas! On the other side of Zoji-La lies the windswept high Ladakh plateau, very similar in character to the Tibetan plateau, and inhabited by the same ethnic stock, following the same form of Buddhism. The summits of these mountains are perennially snow-bound, and among them lie pristine glaciers and sapphire blue lakes, the source of myriad rivers.



8. *Rhododendron* forest at 3000 metres

7. Wild flowers carpet a meadow near Dhanolti in Uttar Pradesh



9. Darcha in the Lahaul valley on the way to Zaskar



10. The Indus river as it runs through the high altitude desert of Ladakh





11. *The austere beauty of a desert landscape*

These rivers carve deep gorges through the mountains, and are the only source of a precarious sustenance to the isolated communities that eke out a living from narrow strips of terraced fields clinging to the steep slopes. Yet even these remote villages are connected to the mainstream of national life by an excellent network of roads built and maintained by the Border Road Task Force and the Army.

In stark contrast to this 'moonscape', primal tropical jungles clothe the Western Ghats and the north-eastern hills bordering Burma, areas which are warm and wet throughout the year. A canopy of tall mixed evergreens shades an impenetrable undergrowth of vines, bamboo, palms and climbers.

Dry tropical forests cover most of the Deccan plateau, which lies in the rain-shadow of the Western Ghats, and has a moderate and highly seasonal rainfall. The sparse vegetation mainly consists of scrubby bushes and deciduous trees such as teak, sal, sandalwood and acacia.

The Thar desert lies on the western border with Pakistan. A land of shifting sand dunes and rocky sandstone outcrops, it has an austere beauty. Extreme temperatures, low and uncertain rainfall and very sparse thorny scrub vegetation make this a harsh and inhospitable place. Home of proud Rajput clans it has a colourful history of romance and chivalry. Farther south, not a blade of green relieves the eye on the salty marshlands of the Greater and Lesser Rann of Kutch.

All these zones are bound together by the overwhelming presence of the Himalayas, which form an impenetrable meteorological barrier, protecting the subcontinent from the brunt of the icy winds of Central Asia. Added to this is the moderating influence of the seas around peninsular India, so the climate is generally much milder than one would expect at these latitudes. The Himalayas and the southern seas have also conspired to unite the entire subcontinent under the reign of the monsoons.

Regardless of whether it is the desert or the forest, the mountains or the plains, and although actual temperatures and precipitation may vary widely, all areas experience four seasons — winter from December to February, the dry summer from March to May, the south-west monsoon from June to September, and the north-east monsoon from October to November.

But the monsoon is a unifying force in more than one sense; there is no living creature on the subcontinent that is not subject to its magic spell. As the oppressive heat of summer grows heavier, as the grass and trees turn brown, and the streams and ponds disappear, all eyes anxiously scan the southern horizon for a wisp of cloud. Anticipation rises as the first breezes rustle the leaves, and dark clouds mass on the horizon. Which Indian is not familiar with the heady smell of the first drops of rain falling on parched earth, and which Indian child can resist rushing out into the first monsoon downpour. The emotions and images of the monsoon are as potent and as binding a force to the Indian psyche and in Indian culture, as the coming of spring is to northern latitudes.

Wildlife

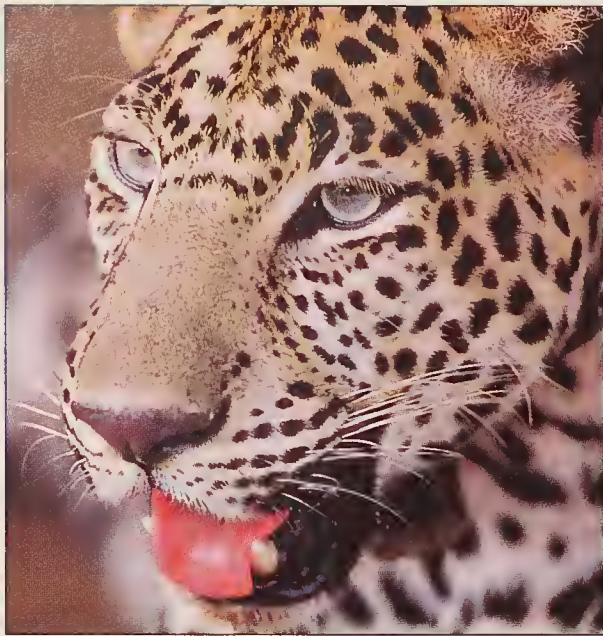
The varied natural habitat supports a staggering array of wildlife. There are some 1200 species of birds in 75 families. These include colourful and conspicuous varieties of



12. The Namlapha rain forest in Arunachal Pradesh, the home of the Great Indian Hornbill and the Hoolock Gibbon



13. The backwater lagoons in Kerala form an important communication link



14. *Among the big cats the leopard is the most adaptable to changing conditions*

pheasant, quail and jungle fowl, mainly inhabiting the Himalayas, storks and cranes, hornbills, flamingoes and kingfishers. While some are indigenous, others are migratory birds that come annually to the northern plains from across the Himalayas, to escape the biting cold of Siberia and Central Asia. Most spectacular is the peacock, the national bird, which is found through most of the country. The bright green parrot is a favourite bird, much used in paintings, songs and literature. India is famous for its snakes, particularly the deadly King Cobra, and the python, both also the subject of many folk tales.

There are over 500 species of mammals, including the elephant, the rhinoceros and the Indian bison (gaur), among the largest land mammals in the world. India is the last refuge of the one-horned rhino and of the Asian lion. It is also the only country where one can find the magnificent trio of large cats — the lion, the tiger and the leopard; sadly, the last Indian cheetah was shot as recently as 1948. The majestic tiger, truly the king of the forest, prowls most of the country, — the foothills of the Himalayas, the forests of Central India, the thick jungles of the southern uplands and the north-eastern hills, and the mangrove Sunderbans, where they have learned to swim and eat fish. The elusive leopard too is found almost all over India, especially in the lower Himalayas. Its beautiful cousins, the snow leopard and the clouded leopard are rarely seen denizens of the high ranges, above the snow line. There are also several lesser carnivores, such as wolves, foxes and the formidable Indian wild dog. India is also home to several species of deer, sheep, goats and antelope ranging in size from the tiny chevotrain, barely 12 inches high, to the sambar, that can grow to 700 pounds.

Primates are conspicuous and noisy inhabitants of most Indian environments, and include the shy langur, the lion-tailed macaque and the loris. Most common, and the subject of many stories, is the ubiquitous Indian rhesus monkey which can be both endearingly intelligent, and an aggressive nuisance. The Himalayan black bear, the 'Bhaloo' of Rudyard Kipling's tales, spends the summer months on the high mountain slopes, coming down to the valleys in the autumn to forage in the fields for maize and fruit. The brown bear is found in the forests of central India.

India's rivers and lakes abound with fish. Himalayan streams are an angler's delight, being well stocked with trout and salmon. In the plains, the giant Mahseer is a challenge to the fisherman. One of India's oddities is the Gangetic dolphin, a large freshwater cetacean. The waterways of Bengal provide freshwater fish such as Rohu and Hilsa, much prized by the gourmet. The seas around India also support large fishing communities along the coasts and the day's catch may include mackerel, tuna, pomfret, prawns, shrimps, skate and even the odd baby shark.

From time immemorial, Indian culture has had a deep reverence for the environment, realising that Man and civilisation are beholden to the bounties of Nature. The earliest animistic tribal religions worshipped trees, forests, mountains, as spirits, or as the dwellings of spirits. The Vedic traditions of the Aryans venerated personifications of the elements themselves — Surya the Sun God, Vayu the God of the Winds, Agni the Fire God and Varuna the God of the Sea. Later, the Himalayas were revered as the Abode of the Gods. They are dotted with shrines and holy spots which give tangible form to a vast treasury of myth and legend woven around the Hindu pantheon. One of the most important of these shrines is the cave of Amarnath, high above the snowline in Kashmir. Inside the cave an ice stalagmite, regarded as a lingam, the phallic symbol of Lord Shiva, increases and decreases in size with the waxing and



15. *The Lion's majestic roar*

16. *Tiger, Tiger, burning bright...*

17. *Little egret in breeding plumage*

18. *Peacock, the national bird of India*



19. Black Buck, a protected species, in Jalore district

20. The magnificent Indian Rhinoceros



21. Elephants in their natural habitat



22. *The wild ass in the barren salt flats of the Rann of Kutch is a protected species*

23. *The gharial, a fish-eating crocodile found mainly in the Gangetic region*



24. Medicinal plants found above the tree line in the Garhwal Himalayas

waning of the moon. Every year in August, thousands of pilgrims undertake the arduous trek to the cave.

Hindus also worship the life-giving power of rivers. According to legend, goddess Ganga descended to earth in response to the penance of King Bhagirath. Devotees trek miles to bathe in the icy waters of the Gangotri glacier, source of one of its two headstreams, the Bhagirathi. The most holy Hindu shrine in all of India is the temple of Lord Badri Narayan or Vishnu, near the source of the Alaknanda, the second headstream. The two streams merge to form the Ganga at Devaprayag, and the holy cities of Rishikesh and Haridwar mark its descent to the plains. A dip in this holiest of rivers at the bathing ghats of Varanasi (Benaras) is said to wash away all one's sins, and is a must for all believers.

There are similar legends and pilgrimage centres associated with all the major rivers, and poets have sung their praises from time immemorial. They have played a crucial role in the subcontinent's history, providing irrigation as well as routes for transport, trade and commerce. Today many of these rivers have been harnessed for irrigation and power, and India's first Prime Minister, Jawaharlal Nehru, described these dams as "the new temples of India".



25. A view of Sal trees at Corbett National Park

In the Rig Veda, a beautiful hymn to Aranyani, the elusive spirit of the forest, exemplifies the symbiosis between Man and Nature that has characterised Indian thought from its inception. The banyan tree, the national tree of India, is considered sacred to Vishnu. Because of its longevity and its nature of dropping roots from its branches, it is a symbol of immortality. The peepal tree and the tulsi plant are also considered sacred by Hindus. The Buddha is thought to have attained enlightenment under the sacred Bodhi tree. The lotus, the national flower of India, is revered as the pedestal of goddess Lakshmi; a lotus flower springing from the navel of

Vishnu is the seat of Brahma. An inverted lotus flower also tops the domes of many Islamic monuments. The Mughal emperors were ardent lovers of nature. They commissioned artists to paint detailed studies of plants, birds and animals, the most celebrated of which are the works of Ustad Mansur, artist at the court of emperor Jahangir. Jahangir and his son, Shahjahan, also laid out several beautiful gardens incorporating trees, flowers, shrubs and flowing water in the formal Mughal style. Mughal paintings are filled with exquisite natural details, which also adorn Islamic architecture. Marble inlaid with semi-precious stones in delicate floral designs of breathtaking beauty decorate the Taj Mahal and several other Mughal buildings.



26. The picturesque Ajgaibinath temple island in the Ganga in Bihar



27. Devaprayag, the confluence of the two headstreams of the Ganga, the Alakananda and Bhagirathi

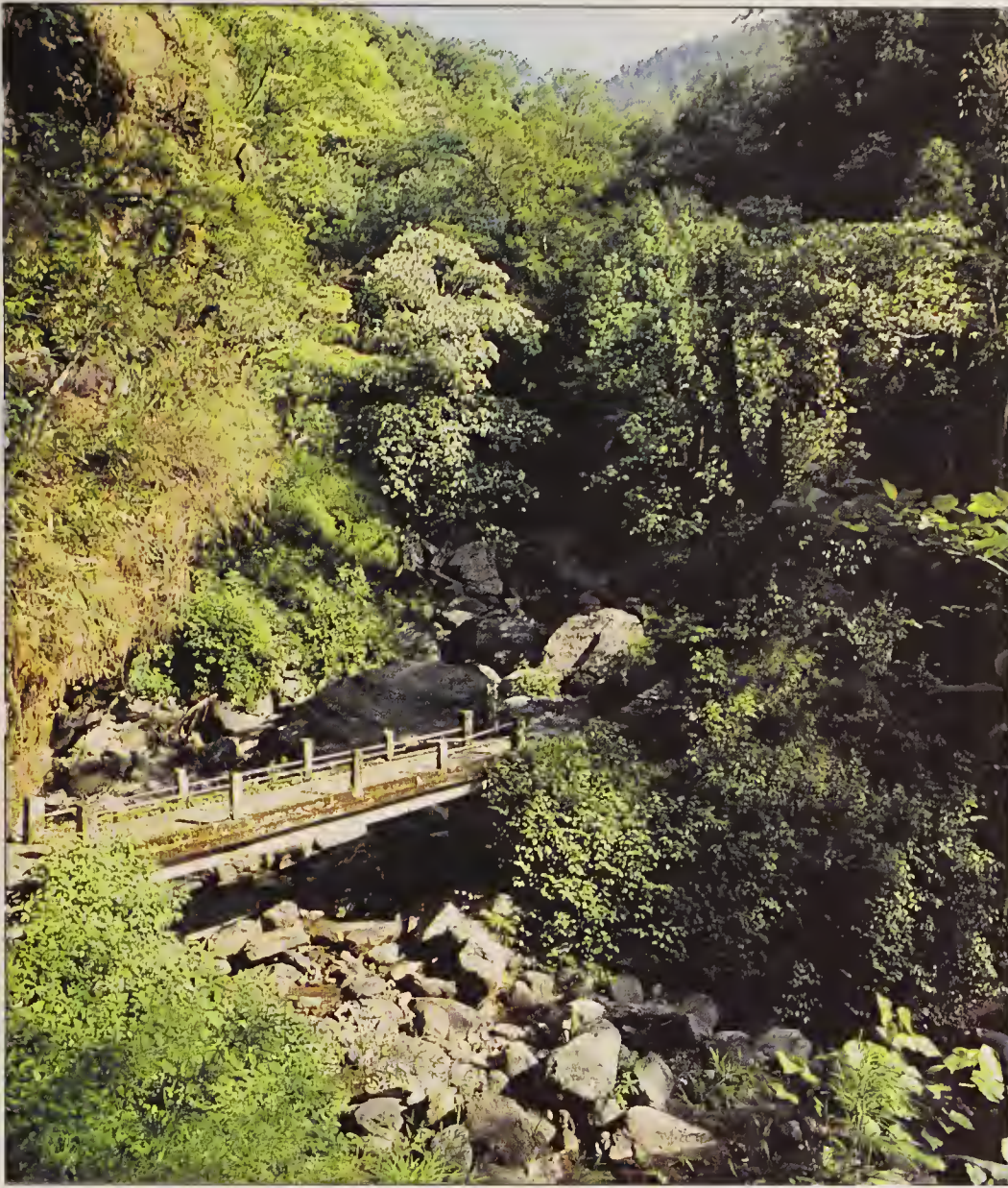


28. *The Bishnoi community living on the edge of the Thar desert have a deep and abiding veneration for the natural environment*

Vedic society forbade the slaughter of cows, as these were considered a valuable asset in an agrarian economy; later this prohibition was given religious sanction. Many animals and birds are venerated as the vehicles of Gods and Goddesses — Nandi, the humped bull is the mount of Lord Shiva, his consort Goddess Durga rides a tiger; Saraswati, the Goddess of learning, floats on a swan, a peacock carries Kartikeya the God of war, and even the humble rat is the mount of the popular elephant-headed Ganesha. Monkeys are revered as descendants of Hanuman, the devoted follower of Lord Rama, incarnation of Vishnu and hero of the epic poem, the Ramayana. Snakes are the companions of Shiva, and the mythical seven-headed snake Shesha spreads its hood protectively over Lord Vishnu. During the Nag Panchmi festival in a particular village in south India, villagers catch venomous snakes bare handed, propitiate them with milk, and worship them; strangely, the otherwise dangerous snakes do not bite their worshippers! The Jain and Buddhist religions preach non-violence (ahimsa) towards all living creatures, and to this day, Jain monks and nuns sweep the path as they walk, and wear muslin masks over their mouths to avoid inadvertently stepping on or breathing in any tiny life-forms.

Epitomising this deep veneration for Nature is the remarkable Bishnoi community, living on the edge of the Thar desert. They take their name from the twenty-nine (Bishnoi) tenets of their faith, preached about five centuries ago by the saint, Jambaji. These include a prohibition on hunting and cutting down, or even removing the branches of living trees. Bishnoi priests feed wild animals and birds in the temple compound every morning with grain donated by the villagers; their lands are virtual sanctuaries where gazelle, wild buck and cinkara deer are so unafraid that they unhesitatingly eat out of human hands. Bishnois take great care of their environment, especially grazing grounds, catchment areas for ponds and lakes, and the 'orans' or sacred temple groves. Equating worship with community service and protection of the environment, they celebrate one of their religious festivals by de-silting the Jambasar lake and depositing the precious top-soil on the surrounding hills. As a result of all these measures which they routinely practise, their areas escaped the worst effects of the 1987 drought, one of the harshest this century, when theirs were the only lakes to retain a little water. A true historical incident illustrates their unparalleled devotion to nature. When the local ruler sent his men to cut down their trees at the village of Khedali in 1730, the villagers clung to the trees in a courageous attempt to save them; unmoved, the woodcutters proceeded with their work, and by the end of the day, hundreds of Bishnoi men and women lay hacked to death beside their beloved trees!

This sensitivity towards nature is reflected today in the Indian Government's policy of protecting the environment. In the period after independence, it was recognised that integrated environmental planning was one of the elements necessary for harmonious and ecologically sustainable development. To this end, the Forest Conservation Act seeks to regenerate the natural habitat that support complex ecosystems of plant and animal life. The National Wildlife Action Plan was formulated in 1983. There are now 74 national parks, over 414 wildlife sanctuaries, and 35 zoological gardens in the country, covering a protected area of 140,285 square kilometres. Dachigam in Kashmir is the last refuge of the Hangul or Kashmiri stag. Black buck, antelope, wolves and foxes roam free in the Thar Desert National Park. The last surviving Asiatic lions stalk their prey in the Gir Forest sanctuary in Gujarat. Corbett Park in the Himalayan



29. *Green Environs — Home for our protected species*

foothills of Uttar Pradesh, was the birthplace of 'Project Tiger' in 1973. Tigers had almost become extinct as a result of indiscriminate hunting and the destruction of their natural habitat, but have now regenerated due to the concerted efforts of the Indian Government and the World Wildlife Fund. Tigers also thrive in the Kanha National Park in Madhya Pradesh, Ranthambhor in Rajasthan, the Sunderbans sanctuary in Bengal, and the two southern reserves of Bandipur in Karnataka and Periyar in Kerala. The last two are also the home of the Asiatic elephant, as is the Kaziranga National Park in Assam. This is the only sanctuary of the Indian one-horned rhino, which is dangerously close to extinction. Two other species of Indian rhino are known to have died out within the last century. Also in danger are the Wild Ass of the Rann of Kutch, and the Great Indian Bustard.

Even more urgent and critical than the need to save these endangered species, is the necessity to save the natural environment of India. There is evidence that the Thar desert was covered with tropical forest 2000 years ago, and the entire subcontinent was thickly forested at the turn of the century. But population pressure, unchecked commercial exploitation and environmental factors have decimated the forests, so that now only isolated pockets remain, and entire mountain ranges have been denuded. Deforestation brings about subtle shifts in climatic patterns, lowering annual rainfall



30. An oran, or sacred common grove where felling or even lopping of trees is forbidden. Only grazing is permitted and the Khedji tree, *prosopis cineraria*, seen here is widely known as the king of the desert and valued for its fodder

and setting up a vicious spiral of desertification. Loss of forest cover also causes massive erosion of valuable top-soil that has been built up by centuries of weathering. A single downpour can wash away the top-soil on an entire mountain slope, causing the choking of rivers and destructive floods in the plains. Both Governmental and non-Governmental agencies are actively involved in rectifying this situation. The Forest Conservation Act was passed in 1980 to minimise the diversion of forest land to other uses, and to prevent its degradation. Since the beginning of the 1990's around a million hectares of land have been afforested annually across the country. Social forestry and afforestation programmes are implemented through village level committees. Local tree growers cooperatives educate the community on the importance of preserving forests and involve them in the selection, planting and protection of trees. There is even a national tree planting festival, the Van Mahotsav.

Urban and industrial wastes have severely polluted Indian rivers. Even the holy Ganga has not been spared, and its aquatic life has been badly damaged. Environmental pollution is being tackled by a Central Board through the Acts for the Prevention of Water and Air Pollution. The Central Ganga Authority was set up to clean up the river.

Over the centuries the land of India, its mountains and seas, its forests and rivers, have sustained a civilisation of astonishing richness and maturity. Only time will tell whether the Government and the people of this civilisation can now restore the incomparable natural treasures of India to their original purity and sanctity.



*History
and
Civilisation*

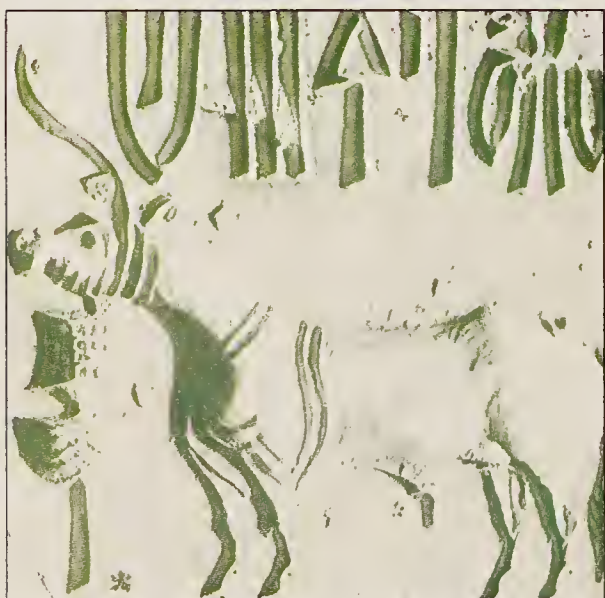
History and Civilisation

The Himalayas have played a crucial role in the destiny of India. Together with the Karakoram and Hindu-Kush ranges to the north-west, and the Arakan mountains to the north-east, they have stood sentinel over the subcontinent, separating it from the Asian landmass, and allowing its peoples and cultures to flow together over the centuries, to form an organic composite entity.

Formidable though the mountain barrier is, it is not impregnable. Over the centuries nomadic herdsman, traders and pilgrims have filtered through its high passes in both directions, allowing a cross-cultural fertilisation of ethnic groups, languages, ideas and lifestyles. Thus the exquisite calligraphic scripts of Tibet are derived from Devanagiri, a north Indian script: conversely, the architecture and religious iconography of the independent Hindu kingdom of Nepal is heavily influenced by Tibetan imagery. The passes have also been the gateway to successive waves of invaders seeking the fabulous treasures of India. Some merely came to loot and pillage; others stayed behind to found empires that shaped the destiny of the land.

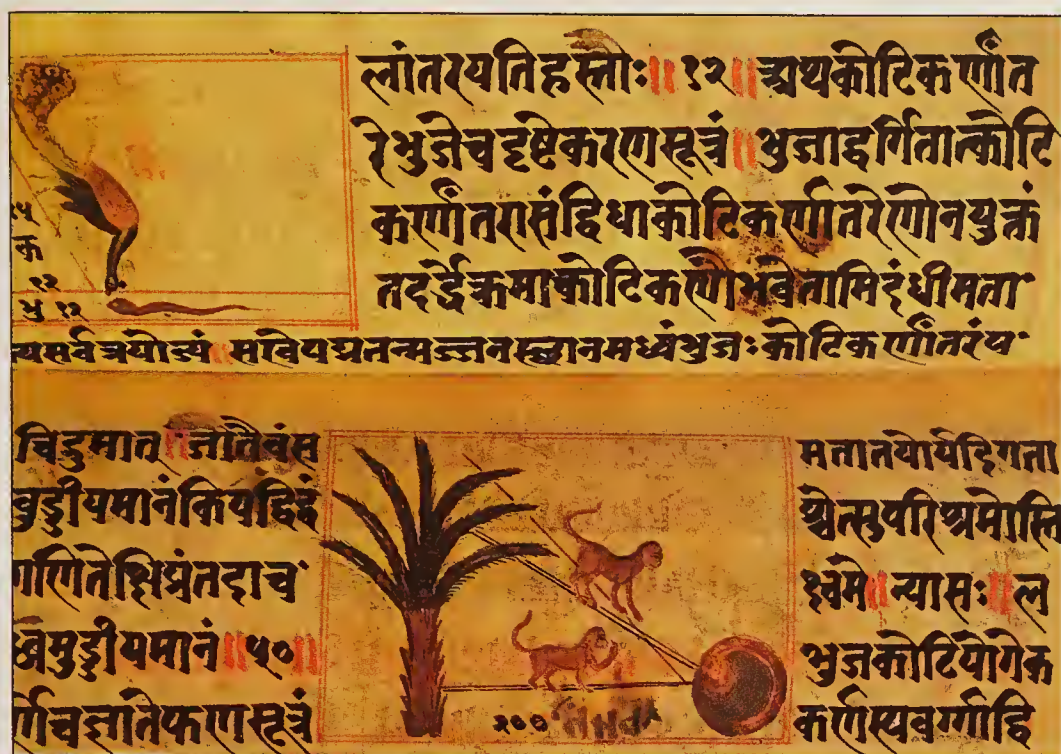
The genius of India lies in its ability to absorb and encompass the many cultures with which it has come into contact; at the same time it has allowed these cultures to flourish as distinct entities. Both host and guest have subtly altered and have themselves been altered by this contact, to mutual benefit. The separate evolution of all these strands, and their continuing interaction, have produced a complex cultural kaleidoscope. India is home to communities from all five major human races — Australoid, Negroid, Caucasian, Mongol and Semite. All the world's major religions are practised and respected; Hinduism, Buddhism, Jainism and Sikhism were born here, while Islam, Christianity, Judaism and Zoroastrianism were brought by settlers.

31. This seal from the Indus valley civilisation testifies to the development of a script c. 2500 BC



The symbiotic relationship between host and guest cultures is well illustrated by the case of the numerically tiny Parsi community. The only surviving followers of Zoroastrianism in the world, the Parsis landed on the coast of Gujarat early in the eighth century AD, fleeing religious persecution in Iran. Legend has it that they sent a delegation to the local ruler, requesting permission to settle. In reply, the ruler sent a vessel filled to the brim with water, indicating that his land could hold no more. The leader of the Parsis returned the vessel with a leaf floating on the water! So impressed was the ruler with the subtle wit and wisdom of this gesture, that he relented. Strict endogamy and a prohibition on conversion have preserved the racial and religious purity and exclusivity of the Parsis, but their culture has been thoroughly Indianised — they speak Gujarati, wear Indian clothes, and have developed a distinct Indian cuisine. The Parsis are now concentrated in Bombay, where they have contributed richly to the industrial, commercial, economic and cultural life of the city.

The earliest signs of human activity in India are the Bhimbetka cave paintings in central India, dating back to the mesolithic period. It was the fertile valley of the Indus, however,



32. Trigonometry from the ancient Indian mathematical text, *Leelavati*

that gave birth to the earliest urban settlements at Mohenjodaro and Harappa, around 3000 BC, in what is now Pakistan. The ruins of these cities point to the existence of an astonishingly well-developed and advanced civilisation based on settled agriculture and animal husbandry. They were built only slightly later than the world's earliest cities in Mesopotamia. The cities were models of urban design with a rectilinear grid of paved roads, well built brick houses, granaries, public baths and even a drainage system. Its inhabitants used money, engaged in trade and, most important, developed a written script which has yet to be deciphered.

The Aryans were the first invaders to enter India through the fabled Khyber pass, around 1500 BC. Overwhelmed by the equestrian hordes of these Central Asian tribes of nomadic herdsmen, the original Dravidian inhabitants of the Indus valley fled south of the Vindhyas, gradually spreading their civilisation all over peninsular India. But it was a case of the ultimate triumph of the vanquished over the victors — the newcomers adopted the settled agricultural lifestyle of their predecessors, and established small village communities across the Punjab.

The Aryans brought with them the horse, the Sanskrit language and their own religion. All three were to play a fundamental role in the shaping of Indian culture. Cavalry warfare facilitated the rapid spread of Aryan culture across north India, and allowed the emergence of large empires. Sanskrit is the basis and the unifying factor of the vast majority of Indian languages. The Aryan religion, with its pantheon of Gods and Goddesses, and its storehouse of myths and legends, became the foundation of the Hindu religion, arguably the single most important common denominator of Indian culture.

The Aryans developed a rich tradition. They composed the hymns of the four Vedas, the great philosophic poems that are at the heart of Hindu thought. As the Nobel Laureate, Rabindranath Tagore expressed it, "The hymns are a poetic testament of a people's collective reaction to the wonder and awe of existence..... A people of vigorous and unsophisticated imagination awakened at the very dawn of civilisation to a sense of the inexhaustible mystery that is implicit in life."

33. Little bronze statuette of a dancing girl found at Mohenjodaro





34. The Mahabharat has provided inspiration for all art forms. Here we see a scene from the epic in Kalamkari style

A settled lifestyle brought in its wake more complex forms of government and social patterns. This period saw the evolution of the caste system, and the emergence of kingdoms and republics. The events described in the two greatest Indian secular epics, the Ramayana and the Mahabharata, are thought to have occurred around this time (1000 to 800 BC). The Mahabharata describes the rivalry between neighbouring rulers as each tries to enlarge his domain through warfare and alliances. Eventually this process culminated in the establishment of large empires spanning the entire Indo-Gangetic plains.

The sixth century BC was a time of social and intellectual ferment. It was then that Mahavira founded the Jain religion, and Gautama Buddha attained enlightenment. These two great religions preached non-violence to all living creatures, tolerance and self-discipline, values that have become the cornerstones of the Indian ethos. Later, Buddhist monks were to spread their religion south to Sri Lanka and north-east to Tibet, China, Japan, Korea and the whole of south-east Asia, where it is practised till today. By the end of the third century BC, most of north India was knit together in the first great Indian empire by Chandragupta Maurya. His son Bindusara extended the Mauryan empire over virtually the entire subcontinent, giving rise to an imperial vision that was to dominate successive centuries of political aspirations. The greatest Mauryan emperor was Ashoka the Great (268-231 BC) whose successful campaigns culminated in the annexation of Kalinga, modern Orissa. Overcome by the horrors of war, he was probably the first victorious ruler to renounce war on the battlefield. Ashoka converted to Buddhism, but did not impose his faith on his subjects. Instead, he tried to convert them through edicts inscribed on rock in the local dialects, using the post-Harappan script, Brahmi. With the collapse of the Mauryan empire at the end of the second century BC, north India entered a period which saw the rise and fall of several smaller kingdoms. Meanwhile, south India saw the rise of three major dynasties, the Cholas, Pandyas and Cheras, who continually vied with each other for supremacy. It was during this period that contact was first established with seafaring Roman traders. Saint Thomas

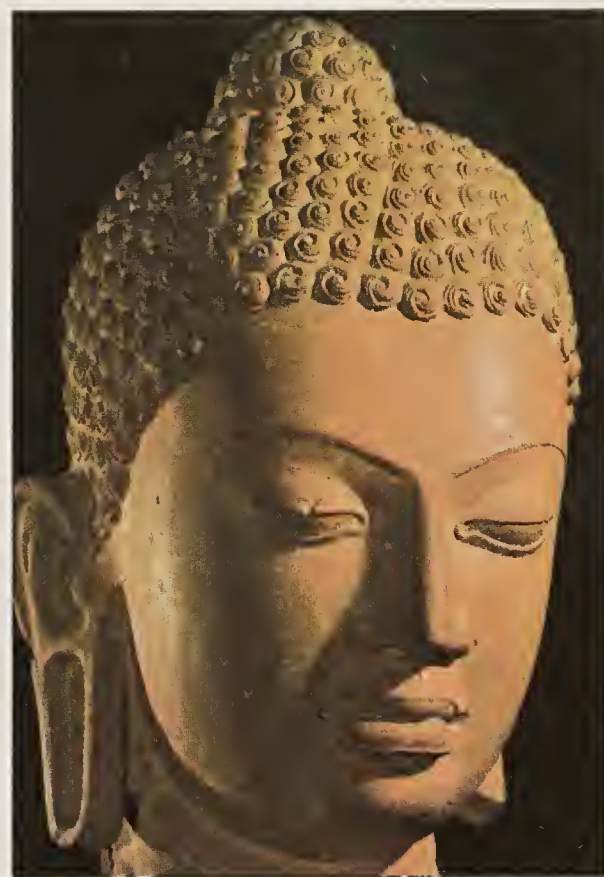
is said to have landed in Goa in the first century AD and established a small resident Christian community there.

The next major empire was the Gupta empire in the fourth and fifth centuries AD. Regarded as the Golden Age of India, this period saw the emergence of the classical art forms. Erudite treatises were written on a multiplicity of subjects ranging from grammar, mathematics, astronomy and medicine, to the Kamasutra, the famous treatise on the art of love. The fall of the Guptas was hastened by Hun invasions in the north-west, and was followed by a long period of political instability. The focus of development then shifts south of the Vindhyas. For 600 years after the mid sixth century, four major kingdoms were involved in a see-saw conflict — the Chalukyas, the Cholas, the Pallavas and the Pandyas. This period saw the establishment of a distinctive Tamil culture, with its own script and styles of art and architecture. This reached its zenith in the twelfth century under the Cholas. The southern kingdoms were accomplished seafarers and under the Cholas, Indian culture and Hinduism spread to south-east Asia. In Kerala, the Cheras acted host to an influx of Arab traders who had discovered the fast sea route to India using the monsoon winds. Some of them settled here permanently, and were allowed to freely practise their religion; their descendants are the present-day Moplah or Malabar Muslims. The next event of immense and lasting significance was the arrival of Islam in the north-west. Lured by tales of the fertile plains of the Punjab and the fabulous wealth of Hindu temples, Mahmud of Ghazni first attacked India in the tenth century AD. Other Central Asian raiders followed. Late in the twelfth century, Qutb-ud-din Aibak founded the so-called Slave Dynasty at Delhi, setting up the nucleus of the Delhi Sultanate, or the rule of Turkish and Afghan sultans, the Khiljis, Tughlaks and Lodis.

The impact of Islam on Indian culture has been inestimable. It permanently influenced the development of all areas of human endeavour — language, dress, cuisine, all the art forms, architecture and urban design, and social customs and values. Conversely, the languages of the invaders were modified by contact with local languages, to Urdu, which uses the Arabic script, and the more colloquial Hindustani, which uses the Devanagiri script. Both are major Indian languages today.

The synthesis of Hinduism and Islam is exemplified by the emergence at this time of the ideas of two great saints, Kabir and Nanak. Drawing on the devotional Hindu Bhakti and the mystical Islamic Sufi cults, the tolerance of Hinduism and the ideas of equality in Islam, they preached religions that advocated simple living and practical common sense. Kabir emphasised the oneness of the Divine in memorable couplets — “Hari is in the east, Allah is in the west; look within your heart for there you will find both Karim and Ram”. The followers of Guru Nanak founded the Sikh religion, which has a large following.

The most important Islamic empire was that of the Mughals, a central Asian dynasty founded by Babur early in the sixteenth century. Under the reign of his grandson, Akbar the Great (1562-1605), Indo-Islamic culture attained a peak of tolerance, harmony and a spirit of enquiry. The nobles of his court belonged to both the Hindu and Muslim faiths, and Akbar himself married Hindu princesses. Leaders of all the faiths were invited to his



35. Buddha head from the Gupta period

36. A 12th century statue of Avalokteshwara the Buddhist deity of compassion





37. The 54 metre high Buland Darwaza, "Mighty Portal", at Fatehpur Sikri, the city built by Emperor Akbar

court at Fatehpur Sikri to debate religious issues at the specially built 'Ibadat Khana'. "Night and day people did nothing but enquire and investigate", said Badayuni, Akbar's bitter critic; what better testimony could one desire?! Akbar tried to consolidate religious tolerance by founding the Din-i-Ilahi religion, an amalgam of the Hindu and Muslim faiths, but this experiment did not survive him. Mughal culture reached its zenith during the reign of his grandson, Shahjahan, a great builder and patron of the arts. Shahjahan moved the capital to Delhi and built the incomparable Taj Mahal at Agra. Aurangzeb, the last major Mughal, extended his empire over all but the southern tip of India, though he was constantly harried by Rajput and Maratha clans.

The next arrival of overwhelming political importance was that of the Europeans. The great seafarers of north-west Europe, the British, French, Dutch and Portuguese, arrived

early in the seventeenth century and established trading outposts along the coasts. An envoy from the British East India Company visited the court of the Mughal emperor Humayun in 1600. The newcomers soon developed rivalries among themselves and allied with local rulers to consolidate their positions against each other militarily. In time they developed territorial and political ambitions of their own and manipulated local rivalries and enmities to their own advantage. The ultimate victors were the British, who established political supremacy over eastern India after the battle of Plassey in 1757. They gradually extended their rule over the entire subcontinent, either by direct annexation, or by exercising suzerainty over local rajas and nawabs.



38. Luytens' New Delhi still retains its appeal today

Unlike all former foreign rulers, the British did not settle in India to form a new local empire. Instead, India became 'the Jewel in the Crown' of the British empire, and gave an enormous boost to the nascent Industrial Revolution by providing cheap raw materials, capital and a large captive market for British industry. The land was reorganised under the harsh Zamindari system to facilitate the collection of taxes to enrich British coffers. In certain areas farmers were forced to switch from subsistence farming to commercial crops such as indigo, jute, tea and coffee. This resulted in several famines of unprecedented scale.

A century of accumulated grievances erupted in the Indian Mutiny of sepoys in the British army, in 1857. This was the signal for a spontaneous conflagration, in which the princely rulers, landed aristocracy and peasantry rallied against the British around the person of the last Mughal emperor, Bahadur Shah. The uprising, however, was eventually brutally suppressed.

But the British empire contained within itself the seeds of its own destruction. The British constructed a vast railway network across the entire land in order to facilitate the transport of raw materials to the ports for export. This gave tangible form to the idea of Indian unity by physically bringing all the peoples of the subcontinent within easy reach of each other. Since it was impossible for a small handful of foreigners to administer such a vast country, they set out to create a local elite to help them in this task; to this end they set up a system of education that familiarised the local intelligentsia with the intellectual and social values of the West. Ideas of democracy, individual freedom and equality were the antithesis of empire, and led to the genesis of the freedom movement among thinkers such as Raja Rammohan Roy, Bankim Chandra and Vidyasagar. With the failure of the 1857 Mutiny, the leadership of the freedom movement passed into the hands of this class and crystallised in the formation of the Indian National Congress in 1885. The binding psychological concept of National Unity was also forged in the fire of the struggle against a common foreign oppressor.

At the turn of the century, the freedom movement reached out to the common unlettered man through the launching of the Swadeshi movement by leaders such as



39. Pandit Jawaharlal Nehru and Sardar Patel, leading figures of the freedom struggle



40. Pandit Nehru and other leaders at a meeting of the Indian National Congress

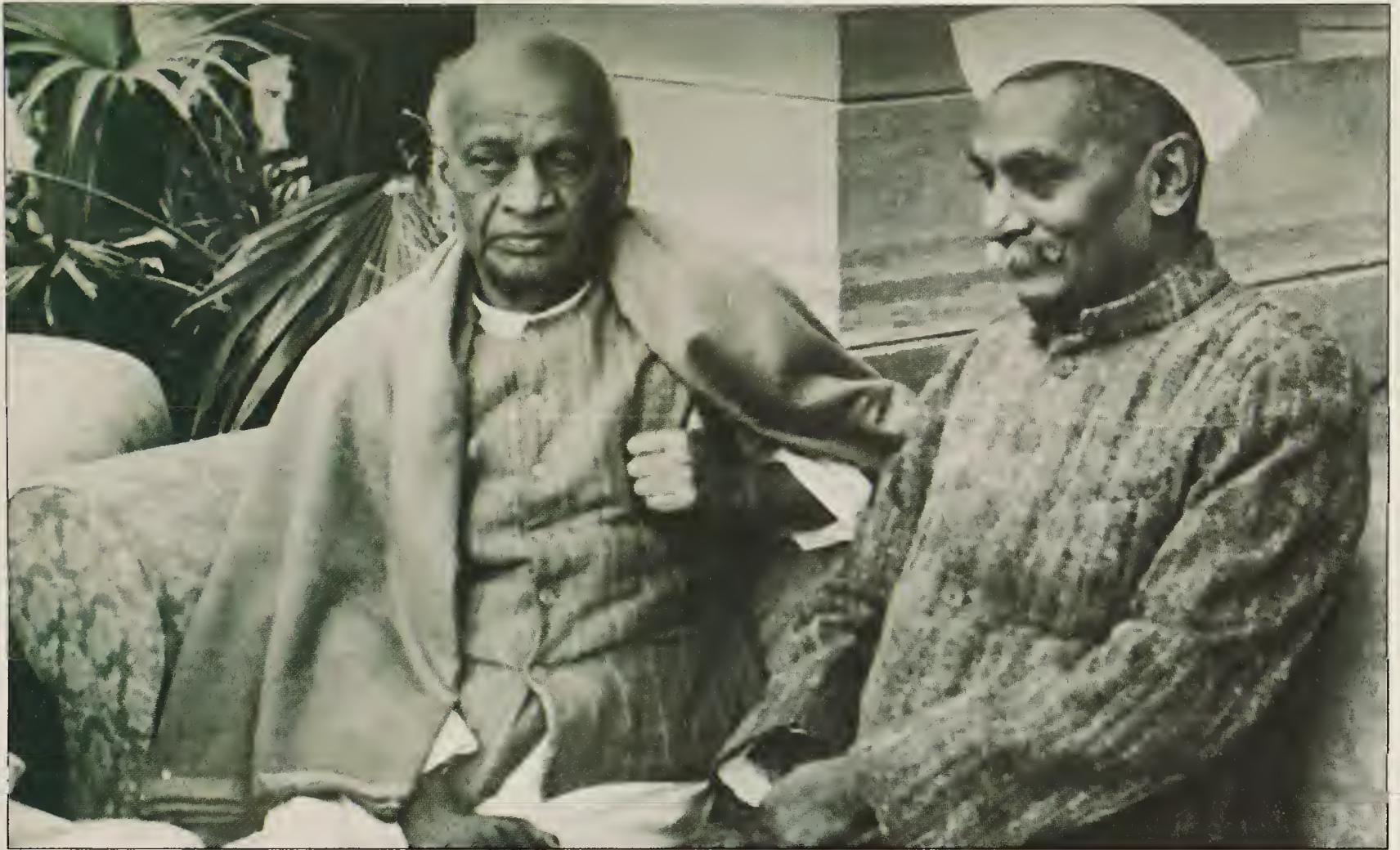


41. Mahatma Gandhi with Sarojini Naidu, one of the many women who played an active role, in the independence movement

Bal Gangadhar Tilak and Aurobindo Ghose. But the full mobilisation of the masses into an invincible force only occurred with the appearance on the scene of one of the most remarkable and charismatic leaders of the twentieth century, perhaps in history.

Mohandas Karamchand Gandhi was an Indian lawyer who had studied law in England. In South Africa he had won his political spurs organising the Indian community there against the vicious system of apartheid. During this struggle, he had developed the novel technique of non-violent agitation which he called 'satyagraha', loosely translated as moral domination. He was thus heir to the ancient traditions of Gautama Buddha, Mahavir Jain and emperor Ashoka, and was later given the title of Mahatma, or Great Soul. Gandhi, himself a devout Hindu, also espoused a total moral philosophy of tolerance, brotherhood of all religions, non-violence (ahimsa) and of simple living. He adopted an austere traditional Indian style of living, which won him wide popularity and transformed him into the undisputed leader of the Congress. As Jawaharlal Nehru said, "He was a powerful current of fresh air that made us stretch ourselves and take a deep breath" and revitalised the Freedom Movement.

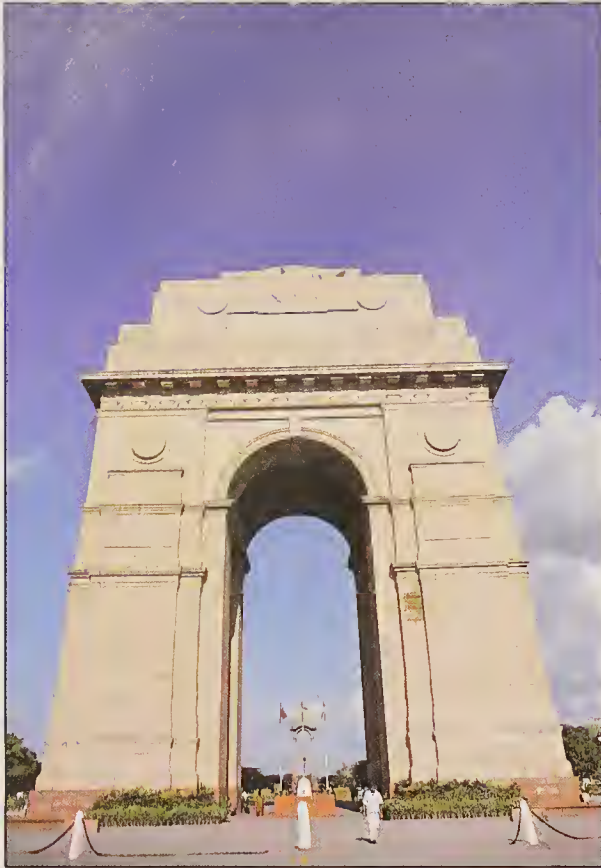
Under his leadership, the Congress launched a series of mass movements — the Non-cooperation Movement of 1920-1922 and the Civil Disobedience Movement in 1930. The latter was triggered by the famous Salt March, when Gandhi captured the imagination of the nation by leading a band of followers from his ashram at Sabarmati, on a 200 mile trek to the remote village of Dandi on the west coast, there to prepare salt in symbolic violation of British law.



42. Dr. Rajendra Prasad, the first President of India with Sardar Patel

These were populist movements in which people from all classes and all parts of India participated with great fervour. Women too, played an active role in the struggle. Sarojini Naidu, Aruna Asaf Ali and Bhikaji Cama, to name but a few, inspired millions of others to take the first step on the road to emancipation and equality. In August 1942, the Quit India movement was launched. “I want freedom immediately, this very night before dawn if it can be had we shall free India or die in the attempt, we shall not live to see the perpetuation of our slavery”, declared the Mahatma, as the British resorted to brutal repression against non-violent satyagrahis. It became evident that the British could maintain the empire only at enormous cost. At the end of the Second World War, they saw the writing on the wall, and initiated a number of constitutional moves to effect the transfer of power to the sovereign State of India. For the first and perhaps the only time in history, the power of a mighty global empire ‘on which the sun never set’, had been challenged and overcome by the moral might of a people armed only with ideals and courage.

India achieved independence on August 15, 1947. Giving voice to the sentiments of the nation, the country’s first Prime Minister, Pandit Jawaharlal Nehru said, “Long years ago we made a tryst with destiny, and now the time comes when we will redeem our pledge, not wholly or in full measure, but very substantially. At the stroke of the midnight hour, when the world sleeps, India will awake to life and freedom. A moment comes, which comes but rarely in history, when we step out from the old to the new, when an age ends and when the soul of a nation, long suppressed, finds utterance We end today a period of ill fortune, and India discovers herself again.”



43. India Gate, a monument to our fallen soldiers in World War I and the ill-fated 1919 Afghan expedition

The progress and triumph of the Indian Freedom Movement was one of the most significant historical processes of the twentieth century. Its repercussions extended far beyond its immediate political consequences. Within the country, it initiated the reordering of political, social and economic power. In the international context, it sounded the death knell of British Imperialism, and changed the political face of the globe.

Throughout history India has absorbed and modified to suit its needs, the best from all the civilisations with which it has come into contact. Once again the fledgling nation demonstrated the maturity and wisdom of its ancient traditions, and the truth of its claim that it was opposed, not to the people or the civilisation of Britain and the West, only to its imperial domination. India chose to remain within the British Commonwealth of Nations. It also adopted the British system of Parliamentary Democracy, and retained the judicial, administrative, defence and educational structures and institutions set up by the British. India is today the largest and most populous democracy on earth, with universal adult suffrage.

The Indian Constitution, adopted when India became a Republic on January 26, 1950, safeguards all its people from all forms of discrimination on grounds of race, religion, creed or sex. It guarantees freedom of speech, expression and belief, assembly and association, migration, acquisition of property and choice of occupation or trade.

The Indian Parliament consists of two houses : The Rajya Sabha or Council of States, and the Lok Sabha or House of Representatives. The former consists of 250 members, mainly elected and some nominated by the President, and is presided over by the Vice-President. The Lok Sabha is made up of 545 members elected from the States and Union Territories. All legislation requires the approval of both Houses. The President is the Head of State, and is appointed through the votes of an electoral college drawn from both Houses and from the Legislature of the constituent States. The Prime Minister is the head of the Government, and is the leader of the ruling party in the Lok Sabha. The President appoints ministers on his advice.



44. India is the largest democracy in the world. A view of Parliament House



Members of the State Legislative Assemblies or Vidhan Sabhas are elected through universal adult franchise. Each State has a Chief Minister who is the leader of the majority party of the Assembly. Elections are supervised by the Election Commission, an independent body. An independent judiciary is the guardian and interpreter of the Constitution, and the Supreme Court is the highest tribunal in the land, at the apex of the state High Courts. The Civil Services implement government policies freely and fairly. Entrance to these Services is by annual public examinations open to all.

45. The Supreme Court is the highest tribunal in the land, at the apex of the state High Courts

The achievement of independence was but the first step towards creating a modern nation. Jawaharlal Nehru spelt it out very clearly, "We talk of freedom, but today political freedom does not take us very far unless there is economic freedom. Indeed, there is no such thing as freedom for a man who is starving or for a country that is poor." Today, economic development and social justice are the priorities of the Indian government.

India's vanguard role in the international anti-colonial struggle has given her natural moral leadership of the Third World in its quest for international peace, equality and justice. Refusing to be drawn into the dangerous confrontationalist politics of super-power rivalries, India was a moving force behind the formation of the Nonaligned Movement (NAM) in 1961. Nonalignment does not mean neutrality, it means a principled approach to international issues. In consonance with the spirit of the movement, India has always sought close bilateral relations and cooperation at all levels with countries of both the Western and Socialist blocs, as well as with other nonaligned nations. The relevance of nonalignment has not diminished in the post-USSR era, but the movement has had to redefine its perspective in the context of increasing polarity between the affluent, developed nations of the North, and the economically developing nations of the South. The main thrust of the movement now is to assert the independence of the South against the dominance of the North, and to resist the interventionist political pressures of aid conditionalities.



46. The U.S. and other developed countries look favourably at the Indian Market

At the United Nations Conference on Environment and Development, India strongly asserted the position of the countries of the South that environmental problems cannot be tackled in isolation from economic and developmental issues. Pointing out that the affluent nations consume a disproportionately enormous share of the earth's resources and create most of its industrial pollution, India joined the developing countries in insisting on complete national sovereignty over natural resources, and demanded that they be suitably compensated for restraining economic growth in order to preserve these assets in the interests of global survival.

The international prestige enjoyed by the country has enabled India to take a leading role in multilateral initiatives toward finding solutions to some of the critical issues of the day, such as nuclear disarmament, apartheid, the rights of the Palestinian people, protection of the environment and the evolution of a more just international economic order. Mutual respect and cooperation have also been the basis of India's relationship with her neighbours.

The South Asia Association for Regional Cooperation (SAARC), established in December 1985, provides a valuable forum for the promotion of regional cooperation among its seven member states — Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. SAARC is based on the principles of sovereign equality, territorial integrity, political independence, mutual benefit and non interference in the internal affairs of other states. The U.N. Declaration of the Indian Ocean as a Zone of Peace, which India has consistently supported, is another step in the direction of peace and stability in the area.

The moral authority vested in India as a legacy of its anticolonial stand, has enabled it to play a vigorous and principled role in all international fora, including the United Nations, in efforts to banish all forms of exploitation from the world.



*The
People*

The People

History is often projected as a chronology of empires, a pageant of kings and queens, heroes and heroines, philosophers and sages. Colourful and inspiring though their lives may be, they are but the visible tip of the iceberg of human society; the story of the bulk of humanity lies submerged beneath the icy waters of anonymity. Yet it is only by feeling the texture of the daily life of the ordinary person, by examining its patterns and rhythms, and understanding the warp and weft of his dreams and concerns, that one can get a true measure of the real quality of a civilisation. How does one define something as complex and as ephemeral as 'the quality of life'? One way is to look at its tangible composite elements — language, dress, food, dwellings, settlement patterns, religion, rituals, festivals. There are also the less tangible social factors — level of technology, access to education, health, social security and justice, and the type and level of participation in government. Finally, there are the intangible 'environmental' aspects — the pace of life, value systems and interpersonal relationships, in a word, its ethos.

Looking at lifestyles in India, one is struck once again by the tension between the amazing spacio-temporal surface diversity on the one hand, and an underlying unity of ethos on the other. The varied nature of the land, combined with uneven rates of development and modernisation, have generated a plethora of lifestyles; geopolitical and historical continuity have provided the shared experiences of a common cultural heritage.

47. Banni children from Gujarat



India has about 15 major languages and 844 dialects. Most of them are Sanskrit based, the notable exceptions being Urdu and Kashmiri which are based on Persian and Arabic, Tamil with distinct Dravidian roots, and the languages of the north-eastern hill tribes who have ethnic, linguistic and cultural links with the Sino-Tibetan group. India's States are organised on a linguistic basis, for easier administration.

Indian sartorial styles are as varied as its languages. Although the sari is the best known of Indian womens' garments, it is by no means the only one, or even the most common. In the mountainous regions of the north and in the Punjab, both men and women wear variations of baggy trousers, 'salwars' with loose 'kameez' tops, which are much better suited to the rugged terrain than the flowing sari. Kashmiris carry a container of live coals suspended from the neck, under their loose woollen 'phirans' — a practice that keeps them warm in the bitter winters, but is not very safe or healthy! Muslim styles predominate on the plains of north India. Both men and women wear elegant 'kurta' tops in fine silk or muslin, with delicate 'chikan' embroidery. Modesty requires women to wear flowing veils, often in richly embroidered gossamer fabrics. The 'achkan', popularised by Jawaharlal Nehru, is known abroad as the 'Nehru coat'!

As though to compensate for the drabness of the desert, the people of Rajasthan and rural Gujarat wear a riot of startlingly brilliant colours. The voluminous folds of the women's skirts, the 'ghagra' and their brief 'choli' tops are often emblazoned with stunning



48. Shopping at a village fair



49. Young woman from Arunachal in her tribal finery

embroidery and mirrors that flash like jewels in the sun, while their veils are decorated with tie-dyed 'bandhni' patterns. Even the poorest wear heavy silver jewellery. The city of Jodhpur gave its name to the famous trousers adopted by riders the world over; variations of these are worn by the men, with loose frock-coats, mostly in white. The vivid colours of their turbans, and the style in which they are tied denote their occupation. In contrast, in the lush forests and emerald green paddy fields of Kerala, white is universally worn. Both sexes wear a 'lungi' or 'mundu', a sarong-like garment wrapped around the waist. A similar garment is worn by the tribes of the north-east, in finely woven patterns and colours that indicate their tribe.

In the rest of the country, the sari is the traditional women's garment. Even so, the manner in which it is worn varies from region to region. In Maharashtra, nine yards of material are used instead of the normal six, and is wrapped to create the effect of loose trousers; Maharashtrian fisherwomen wear a similar garment, but worn high, up to the knees, so the ends don't get wet! While the end of the sari, the 'pallav', is usually thrown backward over the left shoulder, in Gujarat and Bengal, it is draped forward over the right shoulder. The most common garment for men is the 'dhoti', an unstitched length of cloth tied around the waist in a loose trouser-like effect; a 'kurta' shirt may be worn over this.

Indian food is often dismissed by the uninitiated as nothing more than mouth-burning 'curry and rice'. In reality, it is one of the richest cuisines in the world, with wide variations based on locally available ingredients. While rice is the staple in most of the country, wheat

50. Bright colours add life to the desert





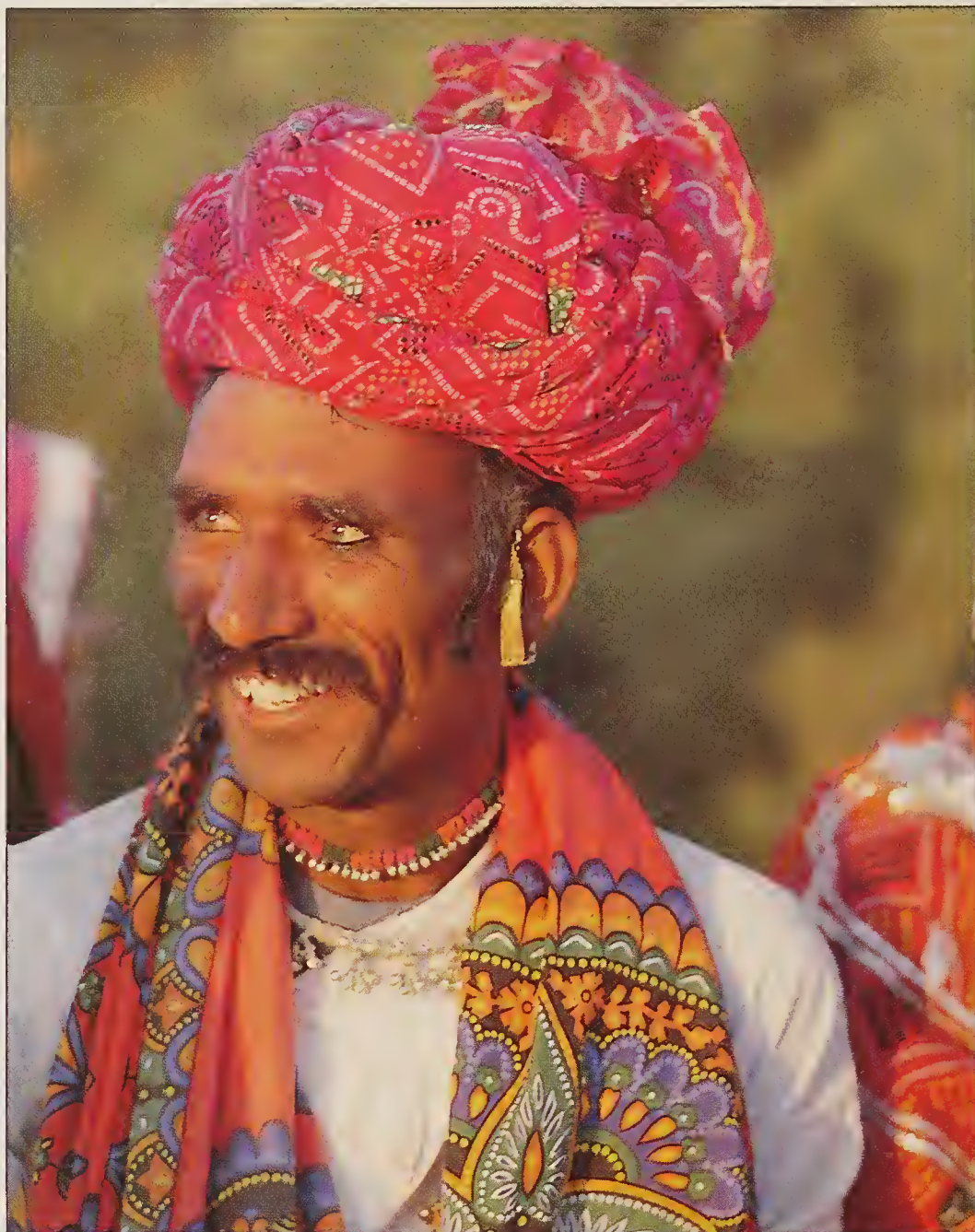
53. Moplah girl from Kerala



51. Women from Kinnaur bedecked in their traditional jewellery

52. A Kutch woman resplendent in her traditional finery

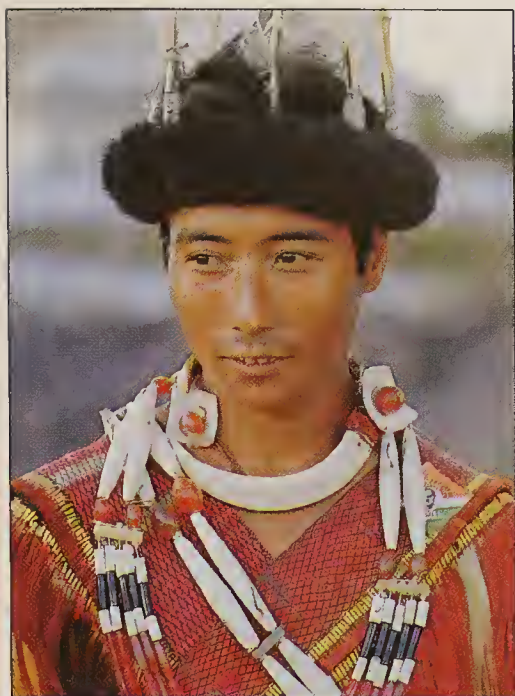
55. *Resplendent in festival clothes*



54. *Spinning wool at Kiber in Ladakh*



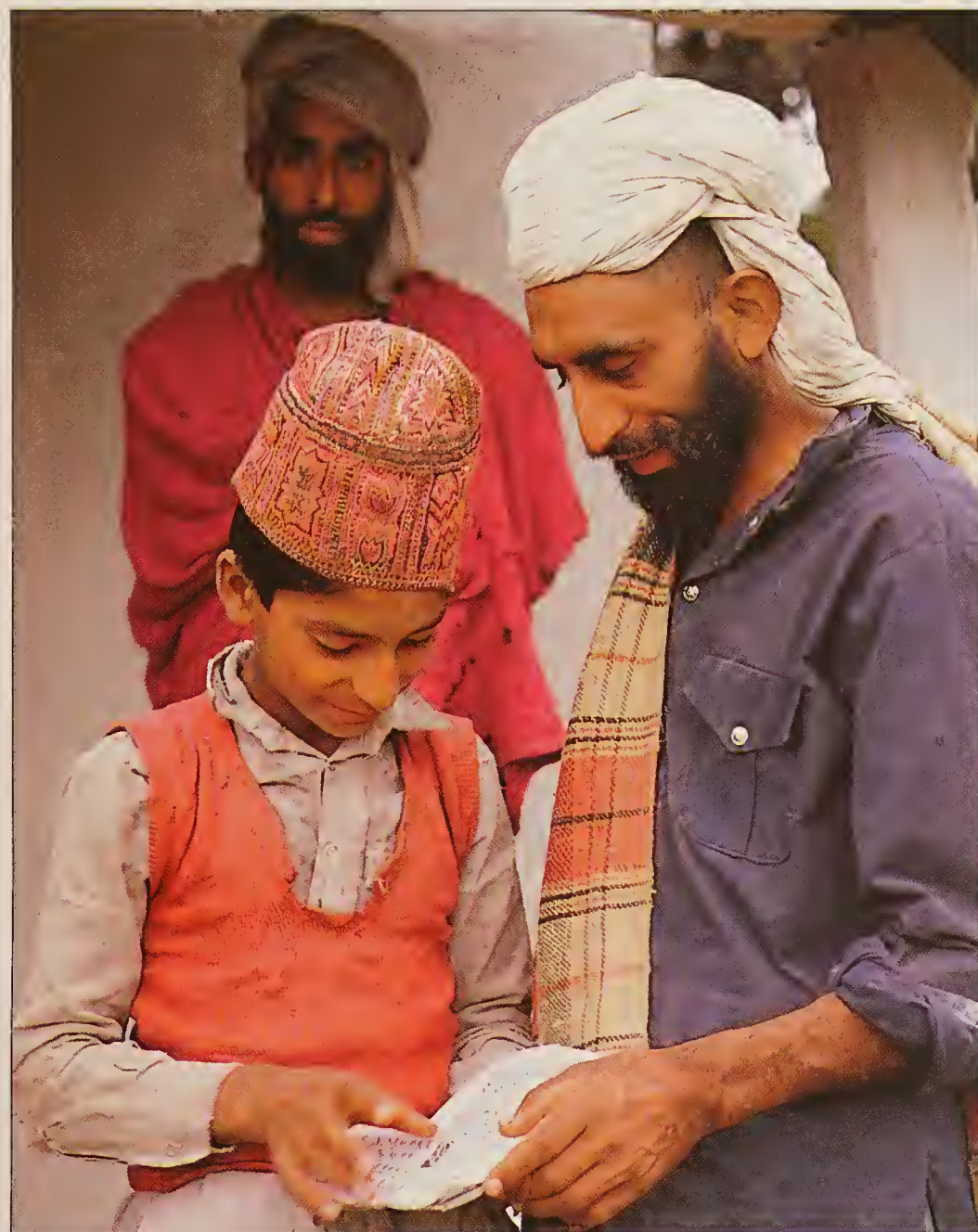
56. *Taking the sun on a winter morning*



57. Tribal youth from Arunachal Pradesh



58. Sikh farmer dressed up for the bhangra dance



60. A temple priest at Kancheepuram in Tamil Nadu

59. The nomadic 'gujjars' travel over 1000 kilometres annually in search of fodder for their cattle. Here a father teaches his son to read and write



61. Vegetable sellers at Leh, the principal town of Ladakh

62. An evening chat



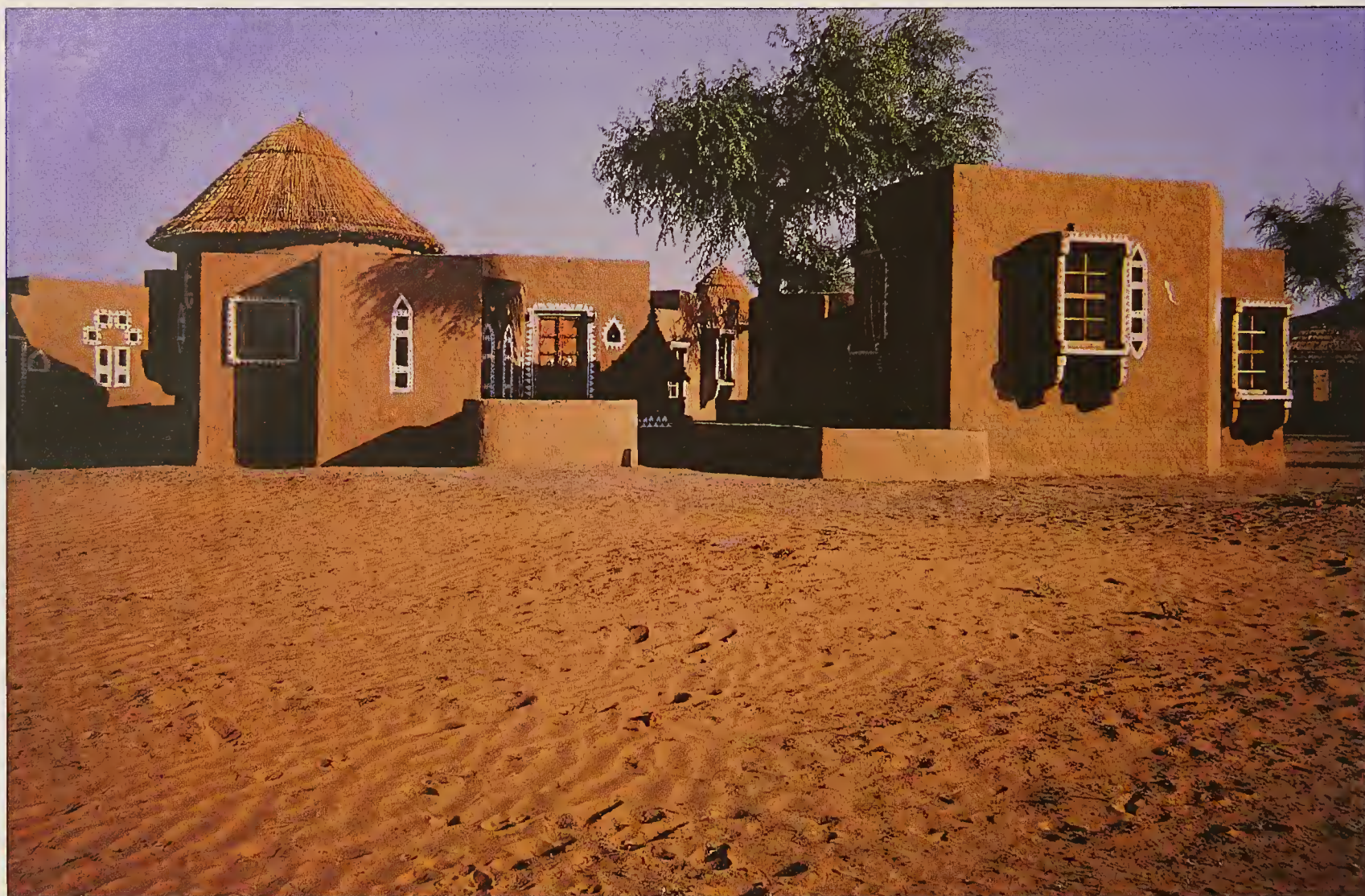
is the main cereal in the north, where it is made into different kinds of unleavened breads. Rural families often eat bread made of different types of millet. Common to the entire country is the use of an astonishing array of spices and condiments. The discerning palate, however, can distinguish variations and combinations from region to region, from the fiery hot curries of Goa and Kerala, thickened with coconut, to the mild, subtle flavours of Kashmiri food, simmered in milk and yoghurt. While meat and fish are widely eaten, many communities are strictly vegetarian. Certain dishes have become popular throughout the country. The robust non-vegetarian 'tandoori' cuisine of the north-west provinces, cooked in clay ovens, is much in demand in 'dhabas' or wayside restaurants even in small towns all over India, indeed, it is famous all over the world. Similarly, 'Madras Coffee Houses' have sprung up everywhere, serving the ever popular south Indian coffee and 'idli' (steamed rice cakes) and 'dosa', (crisp wafer-thin rice pancakes). Wayside stalls offer a bewildering variety of savoury snacks — north Indian 'chaat', Bombay bhel-puri and pau-bhaji, Gujarati dhokla, all manner of kebabs, fried pakoras and samosas are but a few. The 'halwai' or sweet maker produces a mouth-watering array of delicacies, of which the most popular are Bengali sweets made from a milk base.

The dwellings of the common man have developed to suit local requirements. In the mountainous regions of the north, houses are constructed with thick stone or timber-and-mud walls to keep out the bitter cold, and roofs are sharply sloped to prevent the accumulation of snow. Often, the living area is centred around an open central hearth, and in many cases, the ground floor is occupied by livestock, which further heats the



63. Preparation of elaborate Kashmiri cuisine

family living quarters above. The Gaddis, a nomadic pastoral tribe, trek up to the higher slopes in search of summer pastures for their flocks of sheep and goats. They actually burrow into the mountainside for maximum insulation using minimum construction and their dwellings merge into the landscape. In the desert and semi-desert lands of Rajasthan, Gujarat and western Uttar Pradesh, dwellings huddle together in compact clusters, as if in self-defence against the harsh climate, characterised by extremes of diurnal and annual temperature. The typical 'haveli' buildings of these areas present blank windowless backs to the scorching sun, the bleak landscape and the scouring 'loo' winds of summer, and turn their faces inward onto beautiful interior courtyards, often cooled by fountains and shaded by flowering plants. Thick mud or stone construction insulates the high-ceilinged interiors from the fierce daytime heat, then radiates this heat into the rooms at night, thus acting as a giant storage heater. In winter, flat roofs provide open living areas in the warmth of the sun. Individual buildings and settlements are both designed so that all open spaces are in shade for most of the day, except during the hottest hours around noon. These settlements are not only marvels of micro-climatic design, they were also perfect responses to the security and defence requirements of an area that was continuously overrun by invading armies. This 'architecture of the veil' also suited local socio-cultural norms, where most women traditionally lived in 'purdah', in separate women's quarters, a custom that perhaps evolved in an insecure political context. The courtyards of the richer havelis and palaces are richly decorated with wall paintings and fine wood and stone carving. The wall paintings of Rajasthan and the wood carving of Gujarat are renowned, but most stunning of all are the stone fretwork 'jali' window-screens of Rajasthan, which

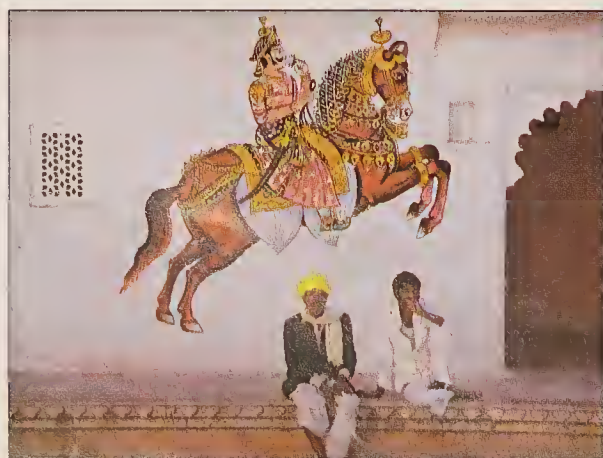


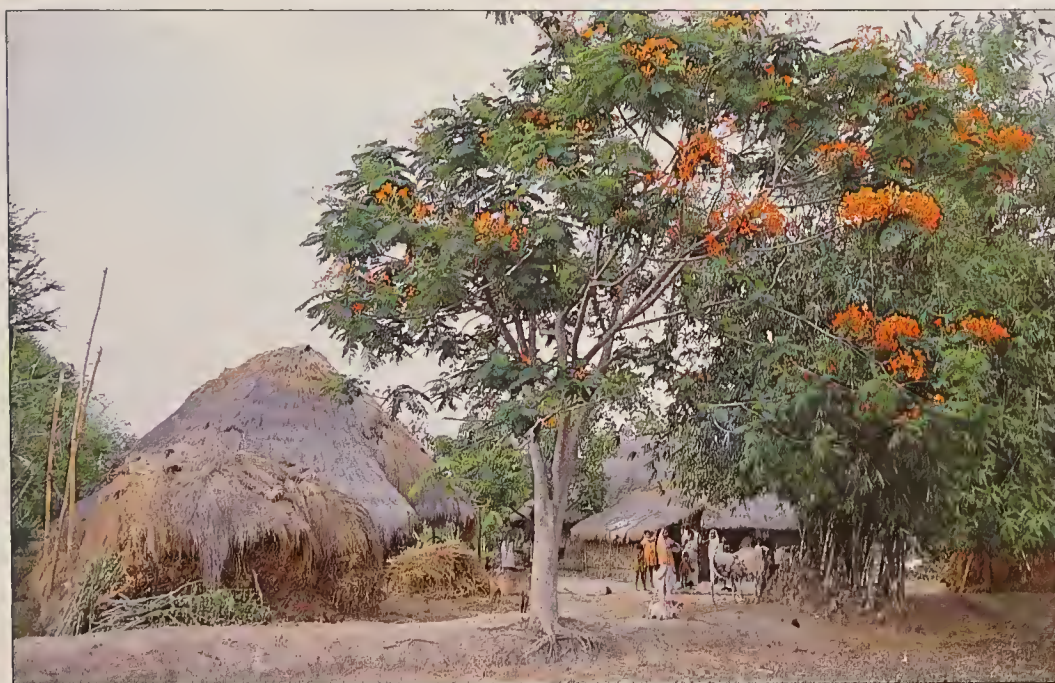
64. Traditional village architecture and materials are being incorporated in modern buildings as well

66. At 5000 metres, Kiber is the highest village connected by a paved road



65. Bright colours characterise wall paintings in Rajasthan





67. A village scene in Arunachal Pradesh

allowed ladies to observe the outside world without themselves being seen; especially celebrated are the jalis of the fortress of Jaisalmer, the intricacy of which makes it difficult to believe that they are carved in stone. More humble village dwellings, too, follow the same courtyard pattern, and are decorated with lively folk and tribal motifs, sometimes accentuated with mud-relief and mirror work.

By contrast, in the warm, humid coastal areas of the peninsula, buildings throw themselves open to the cooling sea breezes. Using the abundantly available palm tree for construction material, they have walls of light woven palm mats on timber frames, and large windows that allow maximum ventilation through single-file rooms. Sloping palm-thatch or tiled

68. Traditional architecture in a south Indian village



roofs with wide overhangs, provide deep verandahs for outdoor living, protected from the sun and from the heavy monsoon rains. In order to encourage free air-flow, houses are surrounded by gardens, and settlements are open and loosely structured. This open living style was in consonance with social patterns where women were generally able to move around with relative freedom — indeed, the Nair community in Kerala is traditionally matriarchal. These three basic dwelling and settlement patterns evolved gradually through the centuries in keeping with local climatic and social requirements, and using easily available local materials. With permutations and combinations of their features, and local variations to suit specific conditions, they cover virtually the entire subcontinent.

From the Indus Valley, urban settlements spread throughout the Gangetic plains. Around the sixth century BC towns grew around villages specialising in particular crafts, or in trade. Some, such as Shravasti, Champa, Rajagriha, Ayodhya and Kashi were important to the Gangetic economy; others, such as Vaishali, Ujjain, Taxila or the port of Bharukachcha (modern Broach) were important trading posts. These cities grew and diminished in importance along with the fortunes of particular empires. The rise of the Mauryan empire saw its capital, Pataliputra, become the premier city. Megasthenes, the Seleucid ambassador to the Mauryan court, has described its administration in some detail — the city was run by thirty officials organised into six committees, each responsible for the industrial arts, trade and commerce, the collection of taxes, sale of goods, registration of births and deaths, and the welfare of foreigners.

By the seventh century AD under the Gupta dynasty, town planning had been standardised, most cities being laid out in squares. Wooden buildings had been replaced by brick in the richer parts of the city, and houses were orientated to the cardinal points, which suggests careful planning, also borne out by the frequency of drains and wells.

69. *Green Delhi, broad roads, beautiful trees and parks*



Judging from excavations and from contemporary descriptions, the standard of living was high, with a wide availability of luxury goods, metal objects and pottery, not restricted to the upper classes alone. Rural settlements were also quite prosperous. During the Chola empire from the eleventh century onwards, the southern temple towns of Tanjore, Madurai, Kanchipuram and Shrirangam became centres of industry, art and learning. The ports of Mahabalipuram, Kaveripattinam, Shaliyur and Korkai on the east coast, and Quilon on the west coast, controlled trade with south-east Asia, China, Persia and Arabia.

Under the Mughals, the demand for luxury goods led to the concentration of artisans in workshops, 'karkhanas', in Allahabad, Delhi, Agra, Patna, Cambay and Broach. The European traveller, Ralph Fitch, was so impressed by Mughal cities during the reign of Emperor Akbar, that he exclaimed that Agra and Fatehpur Sikri were each larger than London. Emperor Shahjehan shifted the capital to Delhi, now the capital of independent India. It is the site of eight capital cities, beginning with Indraprastha, the legendary capital of the Pandavas, heroes of the great epic, the Mahabharata. In the early twelfth century AD, the last Hindu kingdom was located at Suraj Kund, south of the present city. This was followed by the now ruined city of Siri, built by Ala-ud-din Khilji. Tughlaqabad and Jahanpanah both stood near the Qutab Minar. Ferozabad was sited at Feroz Shah Kotla in present-day old Delhi. Emperor Sher Shah Suri constructed the sixth Delhi at Purana Qila. Shahjehan's Delhi, known as Shahjahanabad and roughly congruous with old Delhi today, is still largely intact and includes the magnificent Red Fort and Jama Masjid. Finally, the British moved their capital to Lutyen's impressive new city early this century. Today, it is the centre of government, and a sprawling city whose growth is carefully monitored by the Urban Arts Commission. Each of India's cities has its own distinct personality. While Delhi, the political capital, is spacious and green, Bombay, the premier commercial and economic city, is a congested concrete jungle of sky-scrapers. Its fine natural harbour and

70. The evening skyline in Bombay, India's commercial centre





71. *The splendour of Victoria Memorial and the Calcutta skyline at night*

commanding position on the west coast of India assured its emergence as the main trading port in India, and it still handles nearly 50% of the country's foreign trade. A thriving, vibrant metropolis, it is India's most cosmopolitan city with resident communities from all parts of the country. Calcutta grew to be the base from which the British East India Company expanded into the British Empire, and was its capital until the move to Delhi in 1931. It is one of India's liveliest cities culturally, and has been a centre for new ideas since the nineteenth century, but is beset by severe economic and environmental problems of overcrowding and pollution. Madras is a gracious city with a quiet old-world charm, in spite of having become an important industrial and commercial centre. India's other major cities are growing fast. Bangalore, the capital of Karnataka, is a beautiful garden city that is fast attracting public and private sector enterprises. It is sometimes called "the brain bank of tomorrow's technology". Jaipur, the capital of Rajasthan, was built by Maharaja Jai Singh in 1727. He laid out the city in six rectangular squares within fortified walls, according to the principles of the *Shilpa Shastra*, an ancient treatise on architecture. Known as the 'pink city' because of the colour of sandstone with which it is built, it is one of India's foremost tourist destinations, and also an important industrial centre. So too is Ahmadabad in Gujarat, a textile and design centre. The first mill was built there in 1859, and today there are 72 mills producing 25% of the nation's textile output. The old city of Hyderabad, capital of Andhra Pradesh, has a strong Islamic flavour as it was once ruled by the fabulously wealthy Nizams. So also do the Gangetic cities of Lucknow, Allahabad and Agra, once centres of Islamic culture. Benaras and Patna have grown around ancient city centres. By contrast, the modern city of Chandigarh, joint capital of Punjab and Haryana,

was built from scratch. "Let this be a new town, symbolic of the freedom of India", said Jawaharlal Nehru of Le Corbusier's masterpiece of urban design.

All of India's urban centres are expanding at an alarming rate. The twin pressures of population growth and immigration have placed intolerable strains on housing and on urban service infrastructures. The Government has initiated several programmes to improve urban conditions. These include the environmental improvement of slums by the provision of basic amenities, and the establishment of the Housing and Urban Development Corporation (HUDCO) to construct housing for the economically weaker sections and to provide housing loans. However, the scale of the problems of overcrowding and environmental pollution are so immense that they are becoming increasingly more difficult to overcome. The solution lies in reversing the flow of people to the cities, and the Government is trying to encourage this by formulating policies aimed at the decentralisation of industrial and commercial activity. This would both decongest the cities as well as bring the fruits of progress to underdeveloped rural regions. This approach was endorsed by the Habitat-II Summit at Istanbul in June 1996.

The pace of life in rural India is still measured by the rhythm of the seasons, and festivals celebrate highlights of the agricultural calendar. The boiling over of a pot of 'Pongal', a mixture of rice, sugar, lentils and milk, is symbolic of abundance, and gives its name to the harvest festival of Tamil Nadu. In the high point of the festival, young men prove their courage by trying to snatch away scarves tied to the horns of bulls rushing wildly through narrow village lanes. The famous snake-boat races are held during Onam, the harvest festival of Kerala. At the exuberant festival of Holi, people throw coloured powder and

72. The 'Vidhan Soudha', the state legislature in Bangalore





72A. Caparisoned temple elephants in front of the
Vadakkunathan Temple at the Trichur Puram
festival in Kerala



water at each other to welcome the beginning of spring. Women celebrate Teej, the festival of swings, to mark the onset of life-giving rains. In the north, bonfires are lit on Lori, the coldest day of the year.

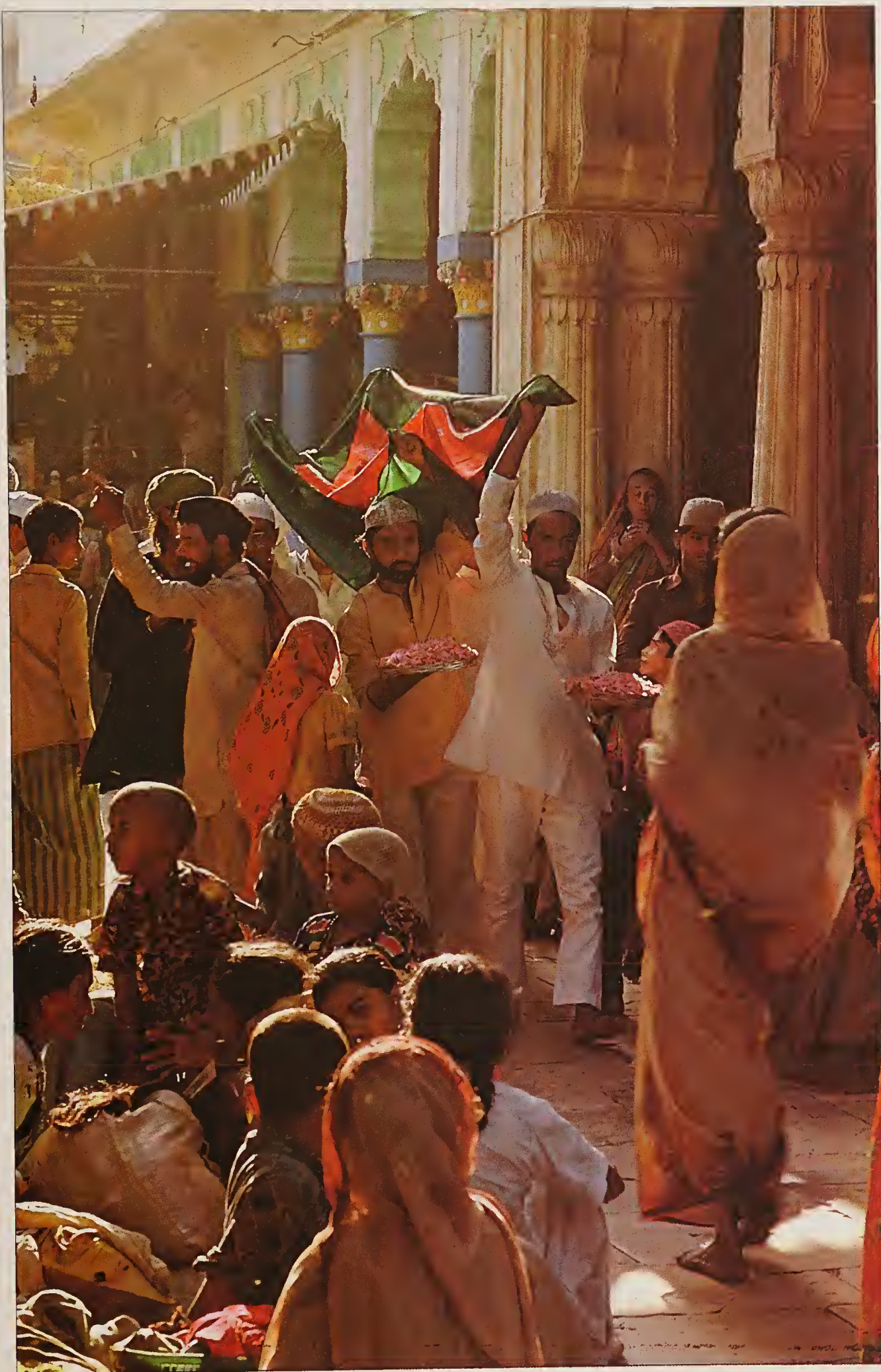
There are also many religious festivals for all the religions. One of the most important Hindu festivals is Dussehra, which celebrates the victory of Lord Rama over the demon Ravana. 'Ram Lila' performances enact the story of the epic, the Ramayana, over ten days, and culminate with the burning of huge effigies of Ravana, his son and brother. In Bengal and Bihar, it is observed as Durga Puja, and ends with the immersion of images of the goddess in the sea or in rivers or lakes.

Diwali is the happiest Hindu festival and is associated with Lakshmi, the goddess of wealth: houses are thoroughly cleaned, doorsteps are decorated with intricate 'rangoli' patterns in coloured chalk powder, new clothes are worn, gifts exchanged, sweets eaten, and at night there are spectacular firework displays and houses are decorated with numerous oil lamps to welcome the goddess home. Traditionally, this is also the beginning of the new financial year for companies.

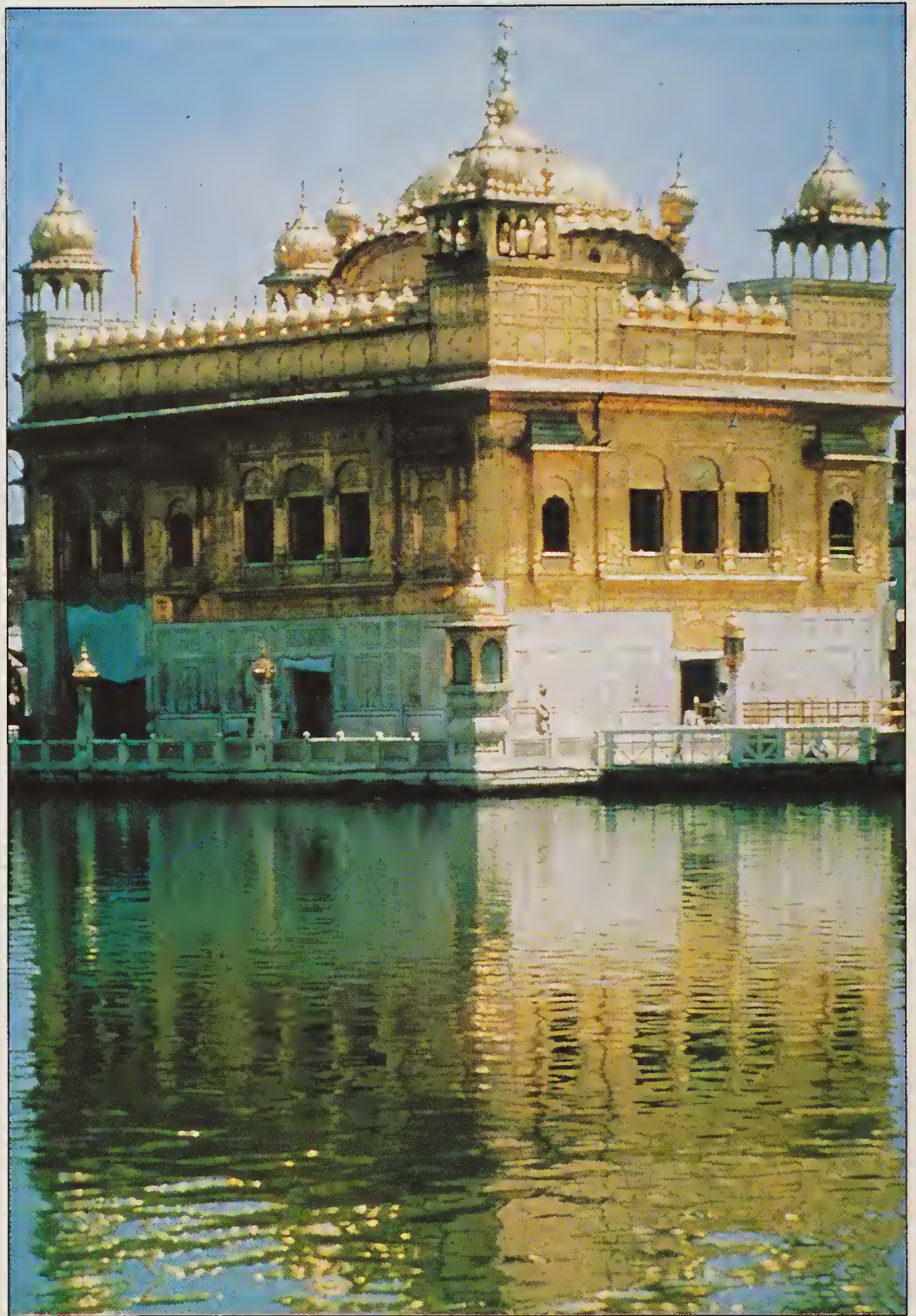
Ramzan, the most important Muslim festival, is a thirty day period of fasting from dawn to dusk. It was during this month that the Koran was revealed to the prophet Mohammed. Id-ul-Fitr celebrates the end of this period. Muharram, a ten day festival, commemorates the martyrdom of Mohammed's son, Imam Hussein. The dargah (grave) of the Muslim saint, Khwaja Moin-ud-din Chisti, at Ajmer, is visited by people of all faiths during the annual Urs festival.



73. Durga Puja celebrations



74. The dargah of Khwaja Moin-ud-din Chisti during the Urs festival at Ajmer



75. *The Golden Temple —
a scene of holiness and tranquillity*

Sikhs celebrate the birthday of Guru Nanak with prayer readings and processions, and the Hola Mohalla festival is held at Anandpur Sahib in Punjab, in memory of the tenth Sikh Guru, Gobind Singh, who founded the Khalsa (pure) order. Christians celebrate Christmas, Good Friday and Easter, and the famous Goa Carnival just before Lent is joined by people of all faiths from all over India.

Apart from agricultural and religious festivals, there are numerous rural fairs and regular 'haats' or local markets, where rural folk gather to exchange not just goods, but also news and gossip, and to feel the pulse of local life. And indeed, it is the pulse of rural India that indicates the beat of its heart, the health of its system. For over 72% of the population still lives in its villages, and it is to these we must turn for a better understanding of the country.



Agriculture



Agriculture

From time immemorial, civilisation has been built on the foundation of a stable agrarian economy. Man could settle in fixed locations only when he had learned to cultivate the wild edible grasses that he had previously gathered for food. Later, the domestication of cattle made it easier for him to till the land, and improved agricultural yields. To protect himself from raiding nomadic herdsman, he built fortified cities and organised armies. From then on, the entire history of civilisation, the rise and fall of empires, the development of sophisticated cultures, the evolution of complex political and social systems, all have been underpinned by the surplus wealth generated by the means of production, primarily by agriculture. Even the most advanced industrial societies today use agricultural subsidies to ensure the production of enough food to feed their populations.

The Indus valley civilisation was based on the cultivation of wheat and barley. There is evidence to suggest that its inhabitants were familiar with such practices as shifting cultivation, organic recycling, and choosing strains of crops suitable for the environment. They grew a variety of wheat with a high degree of drought tolerance, and excavations

76. *The green revolution in evidence*



have discovered dwarf wheat grains dating to about 1755 BC. An eminent agricultural scientist, Dr. M.S. Swaminathan notes, "it is interesting that more than 3000 years later, dwarf wheats are again being used in India, this time the dwarfing character coming from the Norin wheat developed in Japan!" Later, the coming of iron tools facilitated the clearing of the jungles of the Gangetic plains. Here, the fertile soil and heavy monsoon rains made rice cultivation possible. Rice, first probably domesticated in south-east Asia, yielded far more food per acre than wheat, and was thus able to support denser populations. Permanent occupation of particular fields also accompanied rice cultivation, as the diking, digging and terracing needed for paddy fields was too laborious to allow shifting cultivation. Fully settled agriculture with permanent villages and towns created a situation where the ruling classes could easily collect taxes, in return for protecting the farmer. These were the prerequisites for a fresh spurt to civilisation, and for the evolution of effectively centralised monarchies served by professional soldiers and administrators. This supported the rise of courtly centres where a high level of artisan skills developed to serve the demands of the aristocracy. This pattern of development eventually spread throughout the subcontinent.

Recognising the importance of agriculture, the rulers of ancient and medieval India were actively involved in large scale efforts to increase agricultural production, primarily through effective water management. Irrigation canals were constructed in order to decrease dependence on the unpredictable monsoons. The Great Aquaduct across the Kaveri river was built in the second century AD. In the reign of Firoze Tughlaq (1351-86) a large network of canals was constructed in northern India, many of which are still in use today.



77. A traditional irrigation system in the deep desert

78. Tubewells for irrigation, an ubiquitous feature of modern agriculture reduces the farmer's dependence on the monsoon





79. Farmer sifting grain after a successful harvest



80. Major strides in biotechnology and agricultural research help increase both the quantity and quality of food output



81. The benefits of modern science have improved dairy livestock and the quality of milk

Despite these efforts, agriculture continued to be, and still remains vulnerable to the vagaries of nature. The cyclic pattern of droughts and floods has raised the spectre of famine and pestilence across the land throughout history. Natural calamities have sometimes been exacerbated by ill-considered human intervention, such as the imposition of commercial agriculture under British imperialism.

Indeed, the worst memories of the Raj are those of the Great Bengal Famine of the forties, when an estimated 3 million people perished. Determined never to allow such a tragedy to repeat itself in independent India, the government has made self-sufficiency in food grains its highest priority. "Everything else can wait, but not agriculture" said Jawaharlal Nehru in 1949. The seriousness of this commitment was borne out in 1979-1980, when what was perhaps the worst drought of the century was weathered without recourse to imports. This achievement in quantitative terms is an increase in food grain



82. In addition to providing hydroelectricity, dams such as the Upper Salem irrigate a vast area

production from about 51 million tonnes in 1950 to over 191 million tonnes in 1995. This has been achieved, not simply by increasing the area of arable land, but by transforming the traditional agricultural economy into a dynamic, modernised sector through a combination of political, economic and technological initiatives.

Once, India was compelled to import food products. Today it is not only self-sufficient, it also has substantial reserves. Agriculture and allied activities constitute the single largest contributor to the Gross Domestic Product and provide livelihood to about two-thirds of the work force in the country. This remarkable progress is one of the biggest success stories of India.

The Indian government has set up the Indian Council of Agricultural Research (ICAR) and a network of agricultural universities to train modern agriculturalists and agronomists, to conduct specific and locally relevant research, and to develop

appropriate technologies to suit different agro-ecological, socio-cultural and economic requirements. It has also set up a range of administrative institutions and mechanisms to implement technological and economic inputs. The earliest of these was the Community Development Programme launched in the early fifties, through which a network of basic extension and development services was established all over the country. The aim of this programme was to create an awareness in rural communities of the potential means of development, and to make these means readily available to the farmer. The government has backed its political commitment with economic support at many levels. There is no tax on agricultural income, nationalised banks have opened branches at village level, bank loans are easily available for agricultural improvements (and are sometimes written off in times of emergency), there are subsidies on such agricultural inputs as fertilisers, improved seeds and pesticides, and remunerative prices are fixed for certain essential items to promote investment in



agriculture. Such policies are effected by institutions such as the Agricultural Prices Commission and the Food Corporation of India.

On the technological front, better techniques of soil and water management, the development of improved varieties of hardy, high yielding seeds, the use of fertilisers and insecticides, local production of tractors, pumps and other farming implements and tools, and the provision of electric power to rural areas, have all strengthened the hand of the farmer.

The government has also built many dams and irrigation canals to try to overcome the age old curse of alternating floods and droughts. The largest multipurpose project in the country and one of the largest irrigation systems in the world is the Bhakra Nangal project which brings irrigation to over 1.4 million hectares. Other projects include the

83. Mechanisation in farming has become widespread. Rural banking loans have increased the possibility of such aids



84. Together with programmes for increased food production, measures have been introduced to ensure safe and scientific storage of food grains

Chambal river project in Madhya Pradesh, the Damodar Valley Project in West Bengal and Bihar and the Nagarjuna Sagar Project in Andhra. There are also several medium and small earth dams all over the country, and together they have liberated large areas from the tyranny of uncertain rainfall. Now the long finger of the the Indira Gandhi Canal has even touched the barren desert of Rajasthan with a splash of green. Flood forecasting is also being given priority. Over 500 hydrological stations collect and transmit data. The forecasts issued have a 94% accuracy.

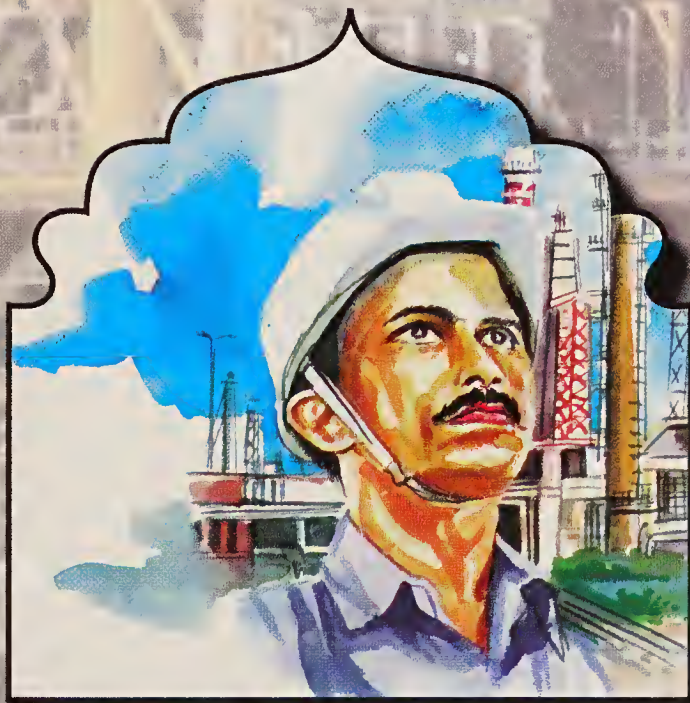
All these measures have wrought a transformation of the agricultural scenario and food security, once a distant dream, is now a tangible reality. There is justifiable pride in our enormous achievements. Yet the future still poses daunting problems : the population is expected to exceed 1000 million at the beginning of the twenty-first century; this huge mass of humanity will depend on agriculture, not just for food, but a majority will also look to it for employment. This mammoth task is further complicated by a host of related issues, chief

among which is the pressing need to regenerate, conserve and strengthen the ecological infrastructure on which agricultural stability is ultimately dependent.

Agricultural production has increased due to many factors: bringing more land under cultivation, better irrigation, use of high yielding variety of seeds, water management and plant protection through the use of fertilisers, pesticides and cropping practices.

Allied food industries like fisheries and food processing have also received a boost. Fish production touched 4.75 million tonnes in 1994-95. Various technology missions have been set up to raise the production of oilseeds and pulses and to provide drinking water in both urban and rural areas.

In a determined effort to effectively meet this formidable challenge, the Government is giving full encouragement, State support and subsidies to advanced research in high technology fields such as bio technology, molecular biology, genetic engineering, cloning, biological nitrogen fixation, photosynthesis and protoplast. The National Biotechnology Board was set up in 1982, and the Department of Biotechnology was established in 1986, to conduct and coordinate research in these fields. Research has been focused on the improvement of animal stock through embryo transfer technology, in vitro propagation and cloning of high yielding and disease resistant varieties of plants, and the development of vaccines against various diseases. Post-harvest technologies for the preservation, storage and distribution of food are also vital areas of research. Advances in these fields, and the establishment of effective organisational infrastructure for their application in agriculture, animal husbandry, aquaculture, marine farming and agroforestry will help overcome the continuing challenges of the future. In the words of Mahatma Gandhi, the solution is to "marry brains and brawn in rural professions!"



*Industry
and
Trade*

Industry and Trade

*I*f civilisation has stood firmly upon the legs of agriculture, then industry has surely been the hand with which it has shaped its world. From the prehistoric discovery of fire, and the invention of the first flint instrument, it is the use of tools that has set man apart from beast, and the type and level of technology that have distinguished successive stages of society from one another. The invention of the plough first made possible settled agricultural societies, and the discovery of metals, especially of iron, gave a boost to agricultural productivity. The surpluses thus generated liberated some people for the development of other skills and refinements, and gave birth to increasingly more sophisticated societies with different social classes and political structures. Early craftsmen specialising in pottery, weaving, carpentry, metal working and the manufacture of agricultural tools, weapons, armour, chariots and ships were the precursors of modern industries.

The wealth and grandeur of ancient India was legendary. Foreign travellers were awestruck by the splendour of the royal courts, the affluence of merchants, the size of cities, the amazing diversity of manufactured goods and the industry of the people. Ancient texts



85. One of the NTPC Power Stations

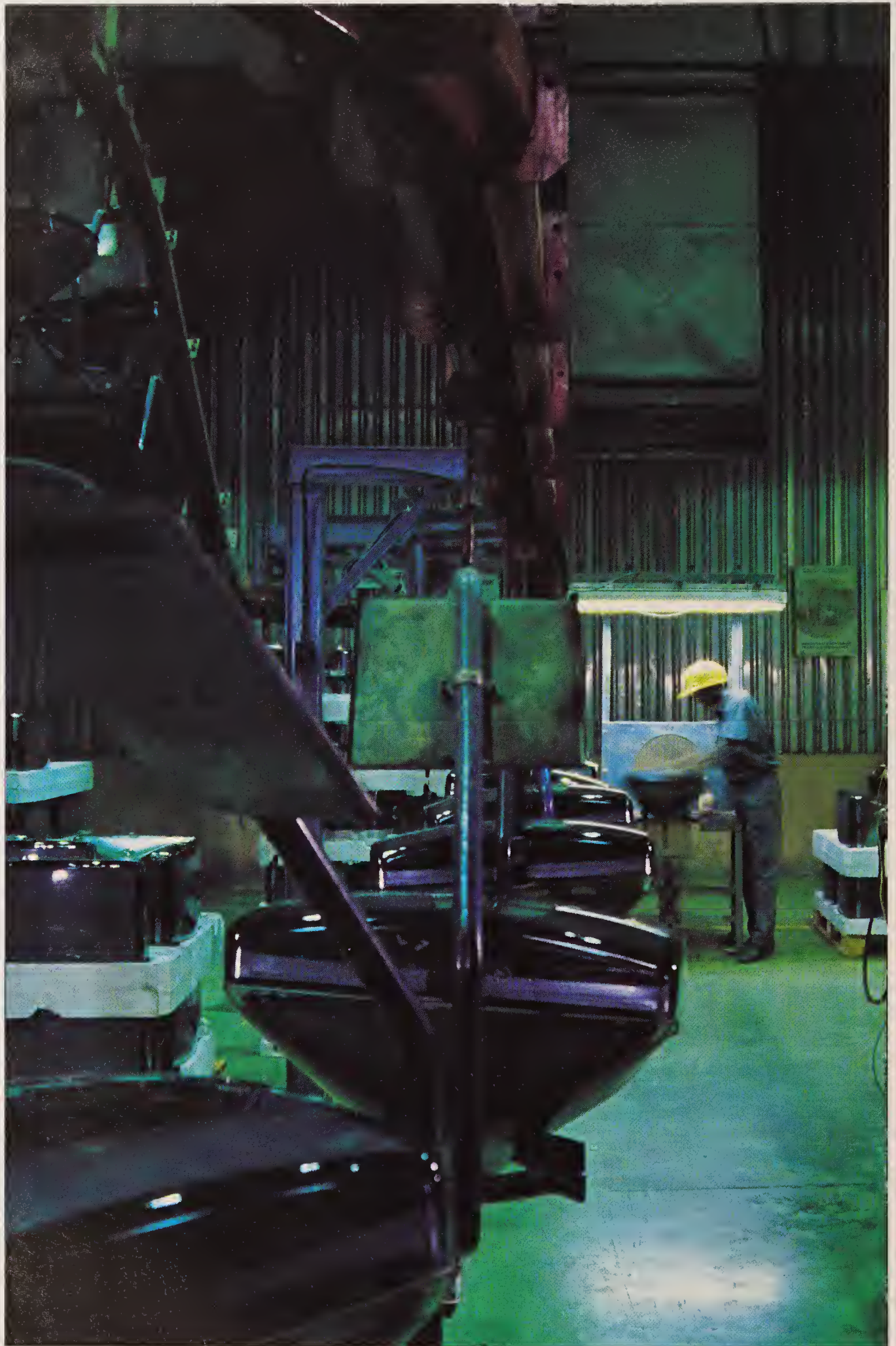
86. *Giant strides in Indian telecommunications*

mention a vast number of industrial skills, including those of the weaver, potter, jeweller, carpenter, builder and smith. As early as the sixth century BC many of these professions were organised into guilds called *shrenis*. The ship-building industry flourished all over the country from ancient times. In the middle of the seventeenth century, a European observer wrote that “the carpenters are grown so expert and masters of their art that there are many Indian vessels that in shape exceed those that come out of England or Holland.”

Trade went hand in hand with industry. Indus Valley seals found in Mesopotamia indicate contact between the two areas, both through overland caravan routes, and through the ancient port of Lothal in present-day Gujarat. Excavations here have revealed a remarkable brick dockyard connected by a channel to the Gulf of Cambay. Maritime trade with the Roman Empire and with the Arabs had been established along the west coast of the peninsula by the first century BC using the monsoon winds. Exports to Rome included spices, jewels, textiles and animals. To cement these profitable links, a number of Indian kingdoms had sent emissaries to Rome as early as 21 BC. Later, the Tamil kingdoms of the south established trade links with south-east Asia. Under the Mughals, Indian ships regularly called at the ports of the Red Sea and the Persian Gulf.

The arrival of the Europeans in the sixteenth century opened up new markets for Indian exports. Indian textiles had become the rage in England by the end of the seventeenth century. An English observer wrote, “almost everything that used to be made of wool or silk, relating either to the dress of the women or to the furniture of our houses was supplied by the India trade.”

With the assimilation of the country into the British colonial economy, both Indian industry and trade suffered a tremendous setback. The country was converted into a source of cheap raw materials and a captive market for British manufactured goods. Any trade that remained was confined to Britain and its other colonies. India was flooded with the products of the industrial revolution, leading to the ruin of local artisans and craftsmen. Perhaps the worst hit was the famous textile industry; “The bones of the cotton weavers are bleaching the plains of India” wrote a nineteenth century British Governor-General. A similar fate overtook most other industries, and by the time of



87. A production line of Colour Picture Tubes in a Modern TV Tube manufacturing plant. Electronics is one of the fastest growing industrial sectors in India



88. Engineer at work in a gas pipeline plant



89. Automated plant for ultra heat treatment long life milk



90. *The Indian Oil Corporation refinery at Mathura*



91. *Exploitation of solar energy*

independence in 1947, less than 10% of the country's labour force was employed in industry, mainly in the traditional cottage and small-scale processing activities. The few factories that did exist were dominated by agro-based industries such as jute and cotton. Plant and machinery were all imported, and so were even the most trivial consumer goods from safety pins to pencils!

The founding fathers of independent India were determined to rebuild a strong industrial and commercial nation, and to reintegrate the country into the modern global industrial economy on an equal footing. Further, this was to be accomplished within the context of a democratic structure committed to social equality and justice. To this end, it was decided to adopt a programme of planned economic development through the instrument of successive Five Year Plans, the first of which commenced in 1951. Planning in India is a comprehensive and detailed exercise guided by the National Development Council. The Planning Commission draws up Five Year Plans in consultation with the Central Ministries and State Governments, and oversees its implementation. The commission is headed by the Prime Minister and draws up its plans under the guidance of the National Development Council. From the Eighth Plan India is moving from a centralised planning system to indicative planning, encouraging a higher growth rate through the highlighting of priorities. Programmes are formulated to build and consolidate the comprehensive, modern industrial infrastructure through planned investment, with an emphasis on self-reliance, economic growth, balanced development in all sectors, and the provision of maximum service and employment opportunities.



92. The Indian Railways have the second largest rail network in the world

Foreign trade has also been given an important role in the economy with the establishment of important government institutions, such as the State Trading Corporation.

The success of planned economic and industrial development is apparent, and India takes legitimate pride in being ranked among the more industrialised nations in the world today. From a stagnant industrial scene in 1947, a vibrant industrial economy now encompasses virtually all sectors from heavy basic industries to the smallest consumer goods, from agricultural inputs to the most sophisticated electronic items.

The most important initial vehicle of growth were the centrally administered Public Sector Enterprises, which included a select group of core sector industries and several basic industries considered strategically important for economic security and national self-reliance. The number of Public Sector Enterprises grew from just 5 in 1951 to 244 in 1991. Today with the public sector facing competition, part equity of some units are being disinvested. But industries in the core areas remain in the public sector.

93. The Advanced Light Helicopter (ALH) made in India



In view of their pivotal role, power, transport and other infrastructural industries are state-owned. Power generation has increased impressively in recent years, and a planned further addition of 38,000 MW during the Eighth Five Year Plan (1992-97) will accomplish a seven-fold increase in 25 years. Private enterprise has been invited into the power sector and is expected to generate an additional 60,000 MW of power. Coal is the primary source of power in India. From a production of 35 million tonnes in 1951, the



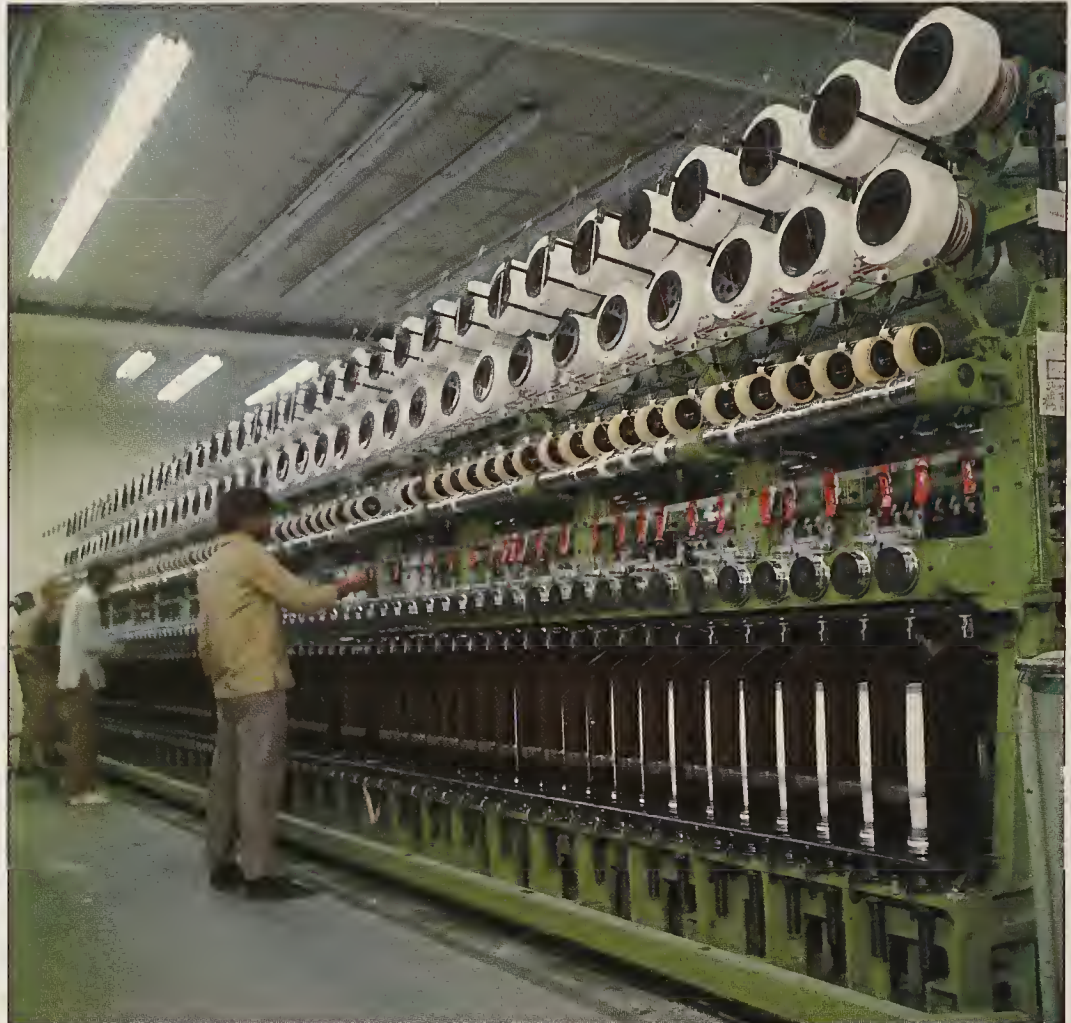
target is to produce over 400 million tonnes by the turn of the century. The coal sector too welcomes private investment and companies will be allowed to operate captive mines. The intensification of exploration and production of oil and natural gas in the country has resulted in a dramatic increase in output. India currently produces 30 million tonnes of crude oil, of which two-thirds is from offshore oilfields. Natural gas is also rapidly becoming an important source of energy. There are over 8500 km of pipelines for the transportation of oil and gas.

India has the second largest railway network in the world, with 7050 railway stations connected by a total length of over 62,462 route kilometres of track reaching out to tiny, far flung hamlets. A fleet of 7356 passenger trains and 5000 goods trains carry a staggering 10.16 million passengers every day, and transport over 35 million tonnes of freight annually. The Indian Railways employs over 1.6 million workers, and designs and manufactures its own diesel and electric locomotives, coaches, components and signalling equipment. The two public sector undertakings under the Ministry of Railways, IRCON and RITES, now provide consultancy, operational and maintenance services in several countries overseas. The Railway is now improving its tracks and plans to introduce faster trains, while certain areas of its operations are being privatised.

Ranging from the cross-country linkage of National Highways to roads into the deepest interior villages, India has a road network of 2.1 million route kilometres. The country manufactures most of its motorised vehicles, and Indian bicycles and scooters are widely exported. Always a maritime nation, India uses its natural asset of a vast coastline for cargo

94. Industrial steel production in India goes back to 1870. Today steel is produced in both the private and public sectors

95. The single largest industry, textile production involves 15 million people and accounts for 20 percent of the total industrial production



transport by sea, and is one of the largest ship-owning nations in Asia, with merchant vessels totalling 5.70 million gross registered tonnes. There are 11 major and about 140 small active ports. The ship-building industry, with a history dating back to the Indus valley civilisation, manufactures much of the country's requirement. India's aviation industry is one of the largest amongst developing countries. Hindustan Aeronautics Ltd. is one of its major aerospace complexes. Five international and over eighty domestic airports provide air services to the entire country, and an internal helicopter service links inaccessible areas in difficult terrain to this network. The government's 'open sky' policy has improved domestic services with private airlines expanding operations.

96. Modernisation of the telephone systems is a priority area



Telecommunications is a vital service industry. India now uses digital technology, deriving advantage from its ability to interface with computers. The present strategy focuses on a balanced growth of the network, rapid modernisation, a quantum leap in key technologies, increased productivity, and innovations in organisation and management. Self-reliance, indigenous R&D in digital technology and extension of telecommunications to all of India's half a million villages are key goals. By February 1995, 10 million telephones were working in India. Soon every village panchayat will have a telephone.

Among the first priorities of the Indian planners was the establishment of heavy industries which would form a strong base for medium and light consumer industry. Steel plants were built at Rourkela, Bhilai and Durgapur in the 1950s and 1960s, followed by a newer plant at Bokaro and the latest plant at Visakhapatnam has recently commenced production. Total production of finished steel is around 16 million tonnes, about 3 times

the production of 20 years ago. The export of iron and steel jumped from 910,000 tonnes in 1992-93 to 2.2 million tonnes in 1994-95. These 'temples' of Nehru's modern India have been the foundation of a wide range of secondary industries in the last four decades.

Engineering goods such as hand tools, steel files, cutting tools, tungsten carbide tools, rolled steel, machine tools, vertical and horizontal boring machines, heavy duty hydraulic and mechanical presses and sheet metal machinery are all now manufactured indigenously. So is capital equipment required for mining, transport, agriculture, irrigation and power. High technology machinery for sugar and textile mills, automotive equipment and spare parts, railway rolling stock, tractors, motor cycles, scooters and bicycles form part of the ever growing list of exports to countries all over the world.

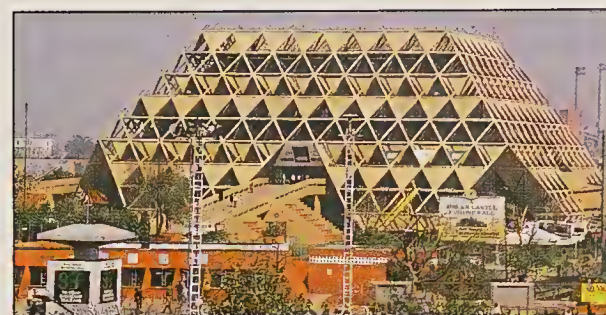
In the last few years, the Indian electronics industry has grown at a compound rate of 35-40% per annum. A wide range of equipment for telecommunications, broadcasting, aerospace and defence is now produced in the country. Significant growth in the industrial electronics, process control and power electronics sectors has resulted in state-of-the-art products being locally available. Indigenously assembled Super AT PCs are internationally comparable, and production of large mainframe computers and parallel supercomputers has also begun. Over 3000 units in the electronics sector provide employment to over 250,000 people, and export products to many countries. India is also now emerging as a major supplier of computer software. The computer industry has grown at the compound rate of 50% during the last five years, and is soon expected to exceed a billion dollars in software exports.

India today manufactures computers, communication equipment, broadcasting and strategic electronics, television sets, microwave ovens and washing machines. Almost the entire demand for floppy disk drives, dot matrix printers, CRT terminals, keyboards, line printers and plotters is met from indigenous production, while India's software industry now possesses expertise in various design, information and support systems.

India has always been justly famous for its textile industry. In ancient and medieval India, spinners and weavers produced delicate silks and muslins that were prized throughout the civilised world. Cotton textiles "as fine as the slough of a snake and in which the yarn cannot be seen" were very popular in the Roman Empire. Now it is the single largest industry, accounting for around 20% of the total industrial output and employing some 15 million people in both the handloom and mill sectors. It also accounts for 25% of the country's exports, again the single largest contribution. Textile exports have increased from Rs. 18.9 billion in 1984-85 to Rs. 200 billion in 1994-95.

India now also produces almost all its own consumer necessities, from the proverbial safety pins and pencils to high value luxury items such as washing machines, colour televisions and video recorders. A remarkable aspect of India's industrial development is that it has not led to the decline or disappearance of the traditional handicrafts sector. Skills handed down from father to son over the centuries still flourish, often with Government encouragement and backing.

Indian handicrafts are famous and greatly in demand the world over, and form an important source of rural employment. Major export oriented crafts are hand-knotted



97. A section of Pragati Maidan, India's largest trade fair complex



98. Visakhapatnam harbour, east coast. India's 11 major ports handle around 200 million tonnes of cargo

woollen carpets, cotton dhurries, art metalware, hand woven and printed textiles, leatherware, woodware and caneware. The co-existence of high technology products with age old crafts is evidence of the strength, and resilience of tradition in modern, dynamic India.

The diversity of the Indian industrial scene today is striking. While all groups of industries have contributed to its overall growth, this has been particularly marked in the high technology sectors such as chemicals, electronics and telecommunications. Many of these industries did not exist in 1951 or were at a rudimentary stage. This widening and deepening of the industrial base has been instrumental in reducing dependence on imports for many items of basic raw materials, consumer goods as well as capital equipment. This pattern of balanced development has enabled India to help other developing countries through technical training, project studies, engineering, joint venture companies, and the commissioning of industrial units. Both public and private sector industries have set up projects in other developing nations using Indian machinery, equipment and technology. Such turnkey projects cover a wide range of industries including engineering construction, chemicals and drugs, and have been executed in several developing countries, primarily in south and south-east Asia and Africa. India has thus further demonstrated in a very practical way her commitment to South-South cooperation and self-sufficiency.

Impressive though India's strides in industrialisation and economic development have been, she still faces tremendous problems. A burgeoning population and increasing expectations create an ever growing demand for both employment and for goods and services. In a determined bid to surmount these challenges, India has embarked on a major programme of economic reform covering industrial, trade and fiscal policies aimed at generating a fresh spurt of industrial growth, and fully integrating India into the global economy.

The country welcomes foreign direct investment to accelerate the tempo of development, to upgrade technologies and promote exports. Controls and regulations originally designed to conserve scarce resources of capital and raw materials, and to protect India's fledgling industry from the fire of international competition have now served their purpose, indeed, have now become a brake on further development; they are therefore being gradually abolished, except in sectors involving security and strategic concerns. Streamlining of procedures, de-regulation, de-licencing, automatic approvals for foreign investment in several sectors of economic activity, and the opening up of areas for private sector investment are the highlights of the new approach.

Exports have been encouraged by the devaluation of the Rupee, tax incentives, and the establishment of specialised duty-free enclaves, the Export Processing Zones (EPZs). Over the next few years, it is hoped that liberal and streamlined procedures will enable exporters to upgrade technology, increase production, and improve quality in order to become more competitive in international markets. With the conclusion of the Uruguay Round of Multilateral Trade Negotiation, India decided to join the World Trade Organisation, successor to GATT. The Non-Resident Indian is also being offered special incentives to invest in India. With these measures, India is confident that she will meet the challenge of the future, as she has previously ridden the crests and troughs of the waves of history.



Science and Technology

Science and Technology

The mighty wheels of industry which have driven the progress of civilisation, would soon grind to a halt if they were not powered by the engine of science and technology. From time immemorial, Man has regarded his Universe with awe and with an insatiable curiosity. In his desire to unlock the secrets of Nature and bend them to his will, he has minutely observed its every aspect, from the movement of the stars above his head, to the composition of the grains of sand at his feet. From such seemingly idle pursuits have emerged the wonders of space travel and nuclear energy.

Definite knowledge about the beginnings of scientific thought in India lies hidden in the script of the Indus valley civilisation. Until the script is deciphered, this can only be guessed at from the remarkable ruins of its ancient cities and ports. The discovery of coins and evidence of maritime trade indicate a certain level of mastery of the sciences of mathematics, geometry and astronomy. India has been strong in the science of pure mathematics from ancient times. It is generally accepted that the concept of zero, absolutely critical to the development of this science, is India's gift to the world, which was transmitted to Europe via the Arabs. Mahaviracharya, the greatest Jain mathematician mentions operations with the zero in the *Ganita Sara Samgraha* in 850 AD. In the fifth century BC Brahmagupta became the first mathematician to solve the so-called Pellian equation. A century later, Aryabhatta calculated the most accurate value of the mathematical constant, Pi, in the *Gitikapada*. The *Bakhshali* manuscript, written on 72 leaves of birch bark in the third or fourth century BC, is an exclusively mathematical text that set forth rules, illustrated examples and provided solutions to geometric, algebraic and arithmetical problems. In the *Kalpasutras*, written in 290 BC Bhadrabahu solved the so-called Pythagorean theorem. The mathematical genius of the Jains was so developed that their highest numeral was an anticipation of the Alef zero of modern mathematics.

These were the earliest in a long tradition of great mathematicians and scientists right upto the present. India boasts of many mathematicians of international repute; S.N. Bose, famous for Bose-Einstein statistics; Meghnad Saha, whose Saha theory of Thermal ionisation forms the basis of our understanding of spectra observed in astrophysics; the intuitive prodigy Ramanujam who made formidable contributions to the Number Theory; Jayant Narlikar, who together with Hoyle made a signal contribution to the theories of the evolution of the Universe.

Today, research in the pure sciences is carried out at various prestigious academic institutions across the country — the Indian Statistical Institute which has centres at Calcutta, Delhi and Bombay, the Tata Institute of Fundamental Research in Bombay and the Indian Institute of Science in Bangalore, to name but a few.

Astronomy and astrology have also fascinated Indians through the ages. The astronomers of the Vedic period observed and scientifically recorded a solar eclipse, and were also



familiar with the concept of the spectrum, as is seen in one of the vedic hymns : “The sun hath filled the air and earth and heaven. These rays of light are seven in colour.” As early as 476 AD Aryabhatta spelt out the astronomical parameters and methods of computation needed to ascertain the division of time, the solar year, the lunar month and planetary positions. Bhaskara applied these methods to astronomy in the seventh century. Maharaja Jai Singh II of Jaipur constructed the famous Jantar Mantar at Jaipur in 1728, and three others at Delhi, Varanasi and Ujjain. These are observatories with masonry instruments to calculate the rotation of the sun, planets and stars, to an amazing degree of accuracy.

99. One of the instruments at the 18th century astronomical observatory in Jaipur, the Jantar Mantar

Contemporary space research is aimed at assisting the national effort towards education, development, communication and environmental conservation. The National Committee for Space Research was formed in 1962. Seven years later, the Indian Space Research Organisation (ISRO) was set up under the Department of Space (DOS). Its seven centres carry out research, development and operationalisation of space systems in the areas of rocketry, satellite communications, remote sensing for resource survey and management, environmental monitoring, meteorological services and so on. DOS is also the nodal agency for the Physical Research Laboratory which operates in the area of space science, and for the National Remote Sensing Agency which conducts natural resource surveys, using Indian Remote Sensing satellites which provide images of world class quality. The research effort resulted in the Satellite Instructional Television Experiment (SITE) which used the ATS-6 satellite to beam television programmes to direct reception sites in 24 far flung villages in all the Indian states, for the purpose of rural development in health, agriculture, family welfare, education and national integration.



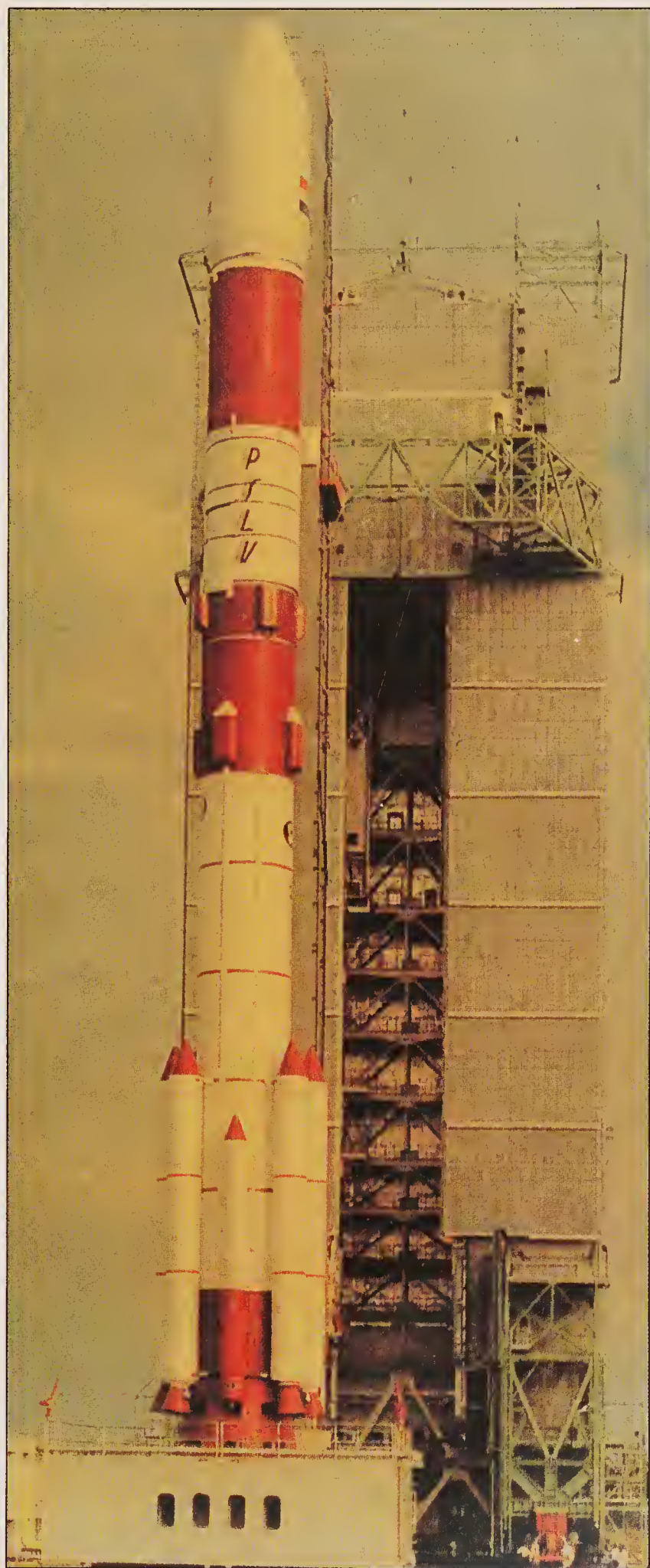
100. The seven centres of the Indian Space Research Organisation carry out research, development and operationalisation of space systems



101. The INSAT-1B satellite continues to provide useful data from space

The first indigenously built satellite, Aryabhata, was launched from the USSR in 1975. This was followed by Bhaskara I in 1979 and Bhaskara II in 1981. Observational studies in hydrology, forestry, snow melt and oceanography were carried out. The Indian Satellite (INSAT) series represents India's first steps towards implementing operational satellite systems to meet the country's communications and meteorological needs. Indigenously designed and manufactured INSAT-II series satellites are currently in use. ISRO has attained the capability to design and build satellite launch vehicles. In 1980 the SLV-3 was used to launch the 'Rohini' satellite, and the following year the first experimental geostationary communications satellite, the Ariane Passenger Payload Experiment (APPLE) was launched. The successful launch of the third satellite in ISRO-built INSAT-II series, INSAT-IIC, on December 7, 1995 and, quickly following, the successful launch of third operational Indian Remote Sensing satellite, IRS-1C, on December 28, 1995, have demonstrated, in unequivocal terms, the capability of Indian space programme to substantially contribute to national development. India launched its third developmental Polar Satellite Launch Vehicle — PSLV D3 on March 21, 1996 marking yet another important milestone in its space programme.

102. Polar Satellite Launch Vehicle — propelling India's space programme





103. Antenna at Dehra Dun for overseas communication via satellite

104. The digitalisation of the telecommunication network is proceeding at a rapid pace. A five-fold growth is planned so that by the year 2000 telephone connections are available in India's 500,000 villages



Realising the strategic importance of fundamental research, as well as applied science and technology, the Government of India is committed to making these an integral part of the process of socio-economic development. Government funding supports about 85% of research and development, the bulk of which is carried out by both Central and State Government departments and specialised agencies for specific needs. The Council of Scientific and Industrial Research (CSIR), established in 1942, is the premier institution for this purpose. It has a network of 39 laboratories, 2 cooperative industrial research institutions and more than 100 extension and field centres. The Council's research programmes are directed towards the effective utilisation of the country's natural resources, and the development of new processes and products for economic progress. Universities are also important centres of research, and now laboratories in both public and private sector industries also make significant contributions to goal-oriented research. Stress is now being laid on the need to link these centres with each other as well as with industry and the agricultural and service sectors. To this end, various Technology Missions, nationally coordinated Science and Technology projects and cross-sectoral bodies have been instituted.



105. Indigenously made super computer — keeping pace with world technology



106. The ultra high voltage laboratory at Bharat Heavy Electricals, Bhopal

Energy is a crucial research area. Energy sources in India are extremely varied. Apart from conventional sources, they range from non-commercial fuels such as agricultural and animal wastes to nuclear plants. The prime purpose of India's nuclear programme is the development and use of nuclear energy for peaceful purposes such as power generation, medicine and industry. The Bhaba Atomic Research Centre was set up in 1954, and India is now self-reliant in the complete nuclear cycle from exploration and mining of fuel ores to power generation and nuclear waste management. Accelerators and research and power reactors are now designed and built indigenously. The sophisticated variable energy cyclotron at Calcutta and a medium energy heavy ion accelerator 'pelletron' recently set up at Bombay are facilities at the frontier of nuclear science. Research and development continues on fast breeder reactor technologies, which would utilise plutonium recovered from spent fuel as well as the vast thorium deposits in the country. A landmark in India's nuclear programme was the commissioning of a 40 MW fast breeder test reactor at Kalpakkam in 1985. Because of the crucial role of atomic energy in meeting power requirements, India has embarked on a programme to attain 10,000 MW of power generation capacity by 2000 AD. There are seven nuclear power reactors in operation in different parts of the country, with a total of 1,465 MW generation capacity. Seven more, each of 235 MW are at various stages of construction, and there are plans for another four. The design of a 500 MW reactor has been developed, and six such reactors are to be set up in the near future, and yet another six still later. In addition, two 1,000 MW reactors will be set up in Tamil Nadu.

Vital though nuclear power is, it is by no means the only important energy source. The Energy Ministry has initiated programmes to design and develop on a priority basis, such renewable, environment-friendly sources as solar, bio-gas and wind. Global solar radiation during the Indian summer is between 163 and 235 Kwh/m² a month. Wind energy farms have been set up at several locations where wind energy density is more than 3 Kwh/m².

In a country with a large cattle population, the potential for the generation of bio-gas is very high. Indigenously designed family and small community size bio-gas plants which are cheap and easy to manufacture locally, are fully operational all over the country. The gas produced can be used for cooking, heating and also for power generation. A by-product of these plants is a rich organic manure. Increased use of these renewable energy sources, both through intermediate, appropriate technology, and through large scale high technology will reduce the demand for firewood and thus aid the afforestation efforts of the country.

In the field of electronics, research focus is on micro-electronics, telematics, high performance computing and software development. The Department of Electronics, set up in 1970, and the Electronics Commission in 1971, actively promote the utilisation of research in the areas of agriculture, health and public services; important service sectors such as defence, energy, the railways, steel, oil and communications have been computerised using entirely indigenous facilities and expertise.

The thrust is now on building up and improving indigenous manufacturing capability, by setting up a series of test and development centres and regional laboratories. Three centres for electronic design and technology help small and medium size electronic units, and a number of R&D projects have been initiated to meet the growing needs of the industry,



107. Microwave transmission tower

with special emphasis on micro-electronics, telematics, high performance computing and software development. Highly specialised manpower is an essential component of this industry, and training programmes in these areas have been sponsored and organised by such bodies as the Technology Development Council, the Centre for Electronics Design and Technology, the National Micro Electronics Council, and the National Radar Council. India has a coastline of more than 6000 kilometres and 1250 islands within its territory. Its Exclusive Economic Zone covers over 2 million square kilometres and its continental shelf extends upto 350 nautical miles. The Department of Ocean Development was established in 1981 to ensure optimum utilisation of this valuable resource area — its living and non-living resources, and its potential ocean energy. Two research vessels, ORV Sagar Kanya and FROV Sagar Sampada, are assessing and evaluating resource potential.

Survey and exploration efforts have been directed to ascertain sea-bed topography and the quantity and quality of mineral nodules. In August 1987, India was allotted a mine site of 150,000 square kilometres in the central Indian Ocean for further exploration and development. She is the only developing country to have qualified for Pioneer Status at the UN Conference on the Law of the Sea in 1982, and the first country to have secured registration of a mine site.

India has sent several scientific research expeditions to Antarctica since 1981, and has established a permanently manned base at Dakshin Gangotri. A second permanent station, an entirely indigenous effort, was completed by the eighth expedition. Geological mapping of 1000 square kilometres of territory in the Wolthart Mountains of Queen Maud Land, East Antarctica, was carried out by the tenth Indian Antarctic Expedition, and the eleventh expedition undertook geological mapping of an equal area at Weyprechtand Prayer mountain in 1991-1992. By virtue of its scientific research activities, India acquired Consultative Membership of the Antarctic Treaty in 1983. She acceded to the Convention on the Conservation of Antarctic Marine Living Resources in 1985, is a member of the Scientific Committee on Antarctic Research, and played a significant role in adopting a Minerals Regime for Antarctica in 1988.

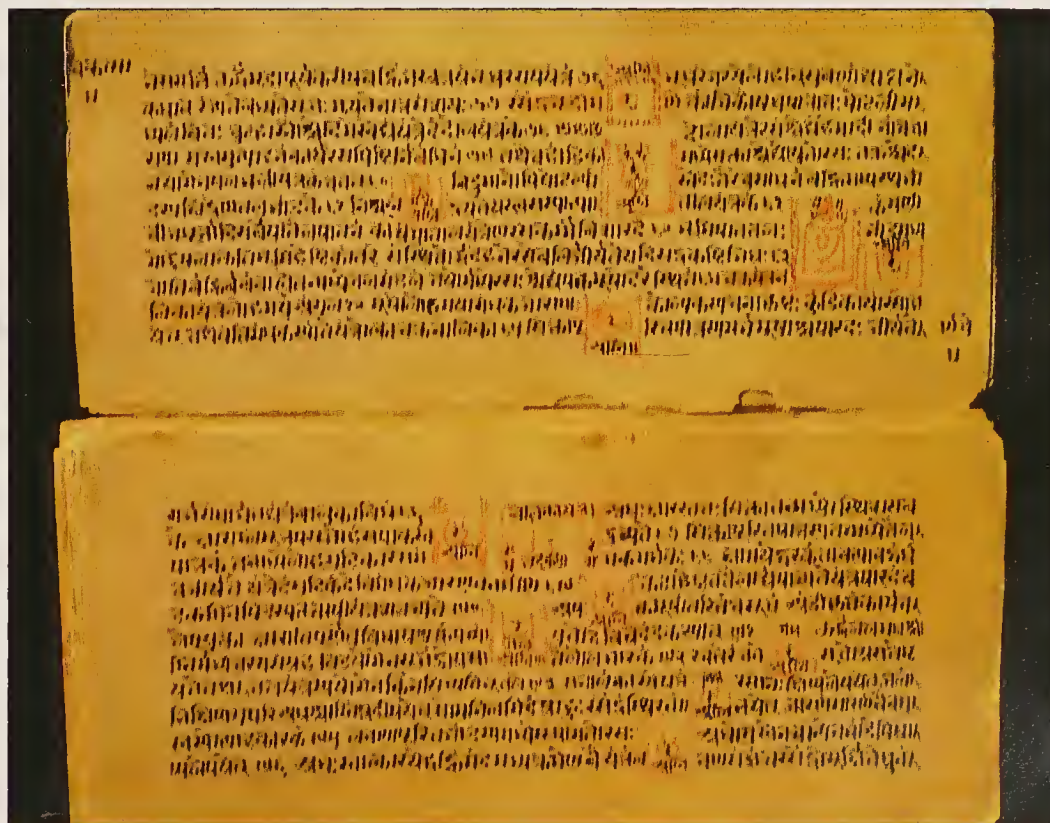


108. Ice core sample selection at Dakshin Gangotri in Antarctica

109. A field camp in the vastness of the Antarctic landscape



Indian medical science has a long history, with three main indigenous systems of medicine. Yoga, internationally the best known of these, dates back to the second century BC, and seeks to achieve a perfect balance of physical, mental, emotional and spiritual health through a combination of physical exercises, regulated breathing techniques and meditation. The Ayurvedic system is based on the complex relationship between the body, the mind and the soul. The two Ayurvedic 'Samhitas' are the Caraka and the



110. An ancient treatise on chemistry



111. Scene at an ultra modern Operation Theatre — doctors at work

Susruta, which deal with pathology, anatomy and toxicology, and contain therapeutic and surgical treatises. The Buddhist sutras, written from the sixth century BC onwards, expound on a complementary system of medicine. The 'Rasachikitsa' school explains the healing properties of metal alloys and compounds, salt, sulphur and its compounds. These are also mentioned in the Tantric texts. This system is still followed by the Tibetan system of medicine.

Unani Tibb, based on the Greek system of medicine, came to India via the Arab peninsula. It includes certain elements of the Ayurvedic system. The Mughals established several Tibb schools at Lucknow, Patna and Madras. There are 95 Ayurvedic and 16 Unani training centres in the country today, and both systems are widely practised alongside western allopathic medicine.

Research in modern medicine is conducted at several centres that are internationally recognised, such as the All India Institute of Medical Sciences, established in 1956. The Indian Council of Medical Research was set up in 1956 to promote, coordinate and formulate bio-medical health research in the country. In 1978 India announced the birth of a baby girl, Durga, as a result of the world's first frozen embryo transfer, in Calcutta.

With a strong scientific tradition, and with the Government actively promoting science education and research efforts in all fields, the continuing growth and health of Indian industry and agriculture seems assured. India has the third largest technical manpower in the world. Today 162 universities award 4000 doctorates and 35,000 post-graduate degrees. CSIR runs 40 research laboratories which have made significant achievements. Yet there is no room for complacency, and the recent economic policies have opened the doors to international technology transfer and cooperation, in recognition of the imperative need to keep abreast with the latest scientific advances in the world.



Art
and
Culture

Art and Culture

The Bhopas are a tribe of nomadic bards in Rajasthan, who wander from village to village singing about the exploits of the local deity, Pabuji. The performance takes place in front of a large cloth painting depicting events from the life of the deity, and lasts seven days and seven nights. While the Bhopa sings, accompanying himself on his folk instrument, the 'Ravanahatta', his wife, the Bhopi, holds a lighted lamp in front of the part of the scroll illustrating the event being narrated. The brilliantly coloured scroll painting, 'Pabuji ki Katha', or story of Pabuji, is done in a stylised folk form by members of families who have specialised in this art, passing down their skills from father to son over the centuries. The artist first performs a 'pooja', a religious ceremony, before the first line is drawn by a young virgin, to signify purity. Only then can the artist begin. Each painting is commissioned by a patron who wishes to perform a good deed, and is donated to a Bhopa. Before the work is completed, the patron and the Bhopa are both invited to participate in the completion ceremony, after which the artist paints in the pupil of the deity; with this act, it is ritualistically imbued with life, in a sense, it is consecrated. The scroll virtually becomes an 'altar cloth' or a portable temple.

This event is a synthesis of the arts of painting, music and story-telling; it is also a source of livelihood for the artist and for the Bhopas, a form of entertainment and, most important, an act of worship for performer, audience, artist and patron. It thus exemplifies the complex, organic interaction of all aspects of life implicit in all tribal and folk art forms; art is not seen as something apart from life, a mere ornamentation or

112. Traditional bards have kept alive an oral tradition of story-telling down the centuries





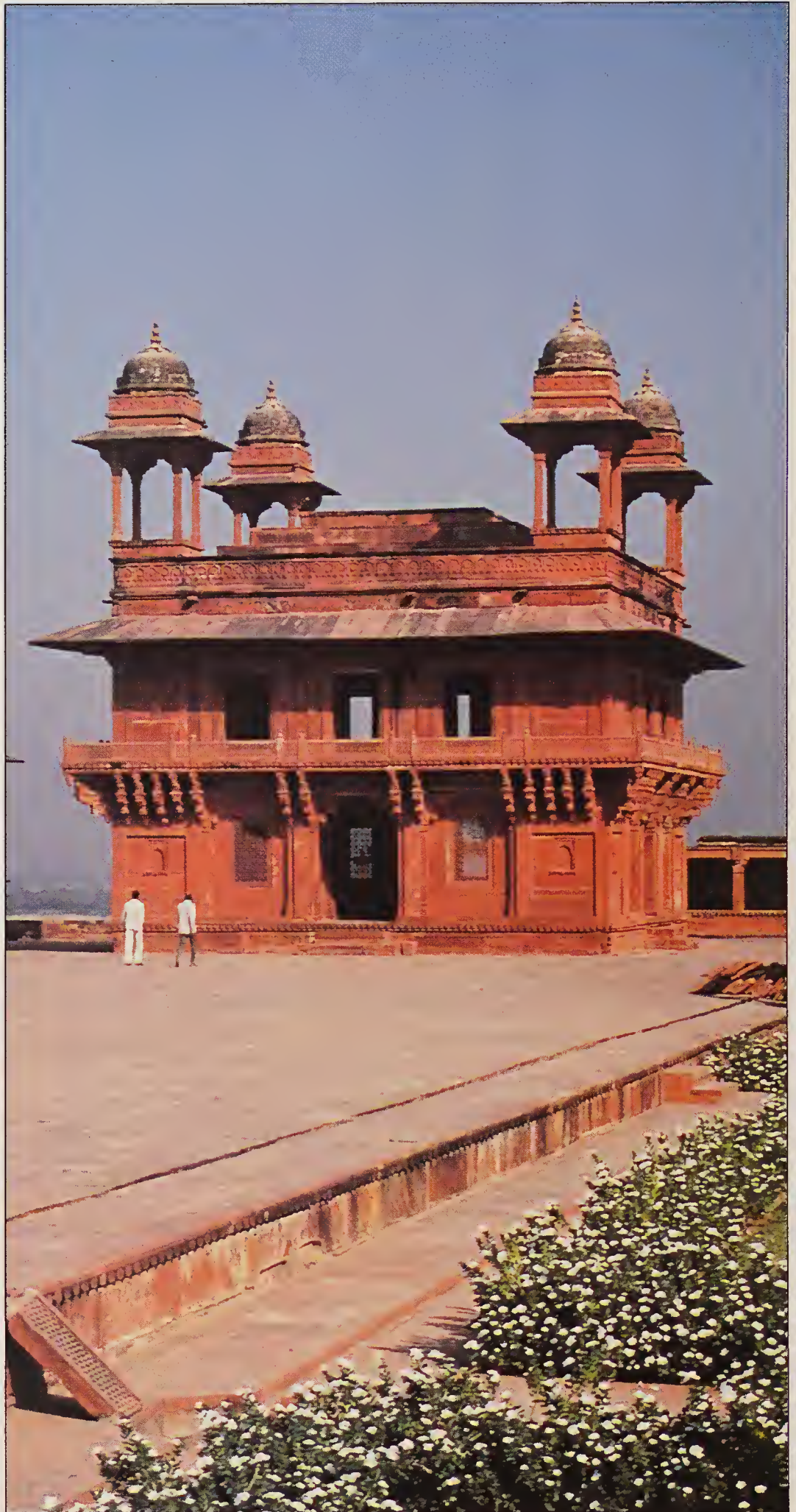
115. For the tribal peoples of India, creation is a part of daily life

113. Lamps — exquisite creations of Indian folk art



114. Artisan at work

116. Fatehpur Sikri



117. Statues of a donor couple at the Malikaarjun temple in Pattadakal



118. Ajanta Fresco



119. Ajanta Caves

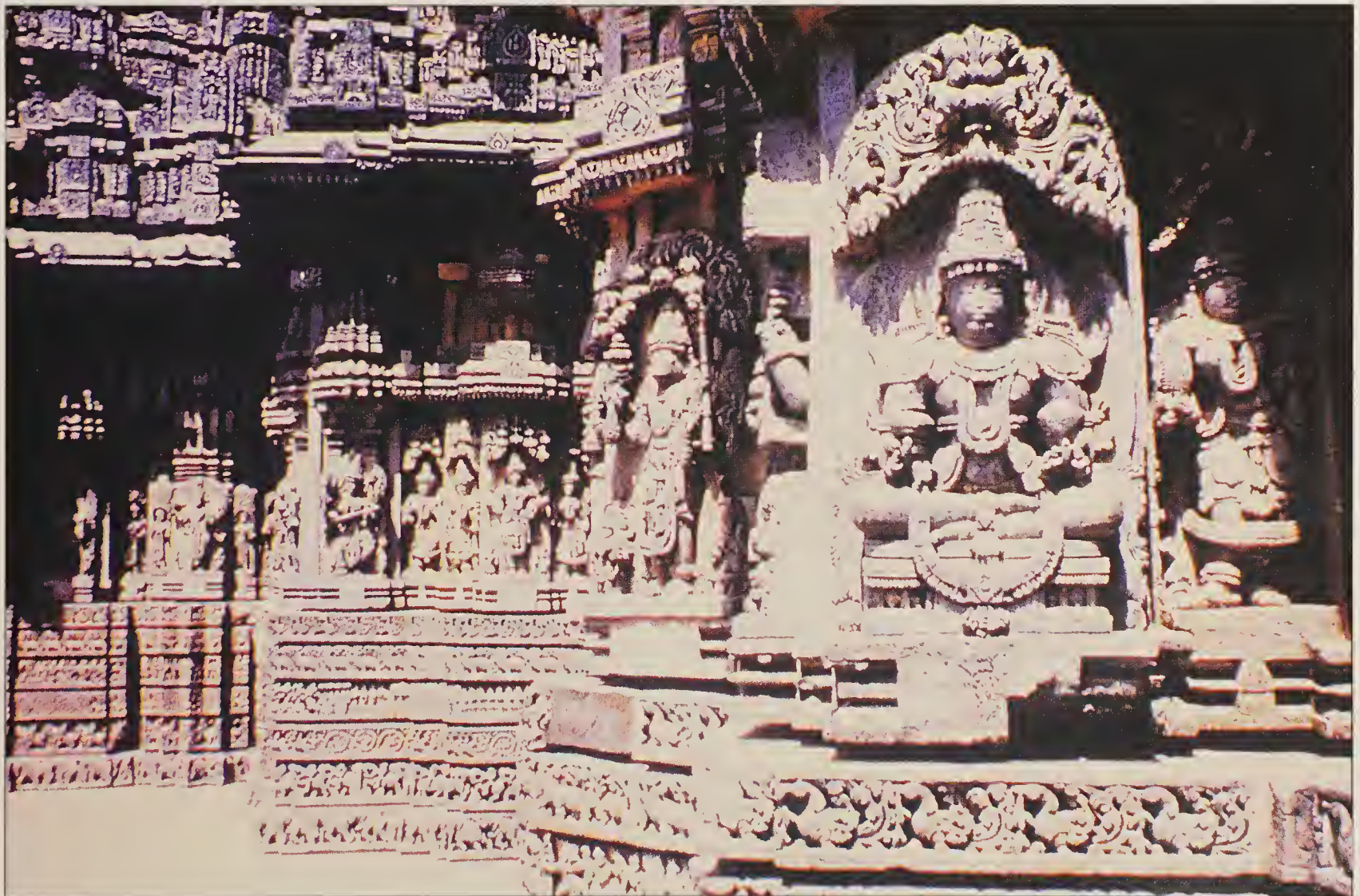




120. The temples at Khajuraho are intricately carved architectural masterpieces



121. Sculptured frieze from Jain temple at Khajuraho



122. Wall panels of Somnathpur

entertainment, but as an intrinsic part of it. The earthen storage urns produced by the village 'kumhars' on their hand-turned potters' wheels, baskets, mats, gleaming brass cooking utensils, kitchen implements such as coconut scrapers, mortar and pestles, betel-nut cutters, sieves and grinding stones, oil lamps, animal saddles and harnesses, carts and wheels, agricultural tools, childrens' toys and swings, dowry chests in which girls store their dreams for the future, idols of and altars for family and village deities, all these are painstakingly crafted and embellished with love and care. Each region of India has its own unique tribal and folk forms, which can vary from village to village, but they all share a common heritage of myths and symbols.

As the early cities of the Indo-Gangetic plains grew in size and importance, there arose an affluent privileged class, the rulers, warriors and priests. The demands of this class for manufactured goods gave a boost to production, and also drew artisans to the cities. As these cities developed into city-states, and then into republics, kingdoms and finally, empires, the size and wealth of this élite also increased.

Under their patronage, skilled artisans and entertainers were encouraged to specialise and to refine their skills to greater levels of perfection and sophistication. Gradually, the classical forms of Art evolved for the glory of temple and palace, reaching their zenith under the powerful Gupta Empire, when canons of perfection were laid down in detailed treatises, which are still followed to this day. Through the ages, rival rajas and nawabs vied

123. A vibrant folk dance from Nagaland



with each other to attract the most renowned artists and performers to their courts. While the classical arts thus became distinct from their folk roots, they were never totally alienated from them; even today there continues a mutually enriching dialogue between tribal and folk forms on the one hand, and classical art on the other; the latter continues to be invigorated by fresh folk forms, while providing them with new thematic content in return. In addition, while links with their folk roots distinguish the regional classical art forms, the myriad folk forms throughout India are bound by common classical religious and mythological themes.

Music and dance are probably the most elemental art forms, spontaneously expressing the entire gamut of human emotions and experiences. Contemporary tribal hunting dances mime animal movements, and songs mimic animal noises, attuning the hunters' reflexes with their prey, enabling them to stalk more effectively; the cave paintings of animals at Bhimbetka are thought to have been executed as part of pre-hunting rituals that incorporated such songs and dances aimed at capturing the spirits of the animals to be hunted, invoking the success of the hunt. Similarly, the pounding beat of war drums accompany war dances that enact victory to instil courage, a kind of psychological positive reinforcement. There are tribal belts throughout India, and although each tribe has its own distinctive music and dances, they all share a similar form, with men and women forming separate rows with linked arms and executing intricate leg movements in a gradually increasing tempo that builds up to a crescendo of unrestrained vigour.



125. Chhaila, a folk form from the Kumaon hills



124. Spectacular and larger than life, the Kathakali dance-drama from Kerala



126. Odissi dancer, Sanjukta Panigrahi

The folk music and dances of agricultural communities celebrate the rhythms of daily life, the turn of the seasons, the highlights of the agricultural calendar, religious festivals and important events that punctuate the flow of life, such as births and marriages. While folk music and dance share common themes and concerns, there is a wide variety of forms. Along the entire Himalayan region, from Kashmir to Darjeeling, folk dancers link arms and sway gracefully in undulating movements, with gentle knee-bends. In the Punjab the virile Bhangra is danced by men to celebrate the sowing of the wheat crop; few can resist the infectious beat of the dholak, the two-sided drum, and pairs of dancers take turns to execute complex acrobatic movements in the centre of a circle of abandoned dancers. Women perform the Giddha, also characterised by its spontaneous energy. Rajasthani women, their faces covered with flowing veils, are swirls of colour as they pirouette in the Ghoomar dance, while their counterparts in Gujarat perform the famous Garba, dancing in a circle with batons. Their men perform the Dandiya Ras, a more vigorous version of the same dance, leaping and crouching in twirling patterns. In the fishing communities of Maharashtra, men and women link arms and dance together, and the women climb on to the men's shoulders to form pyramids. The women's Lavani dance from this area is notable for its unabashed sensuality. There are also several forms of dance-drama or folk theatre, such as the Nautanki of Rajasthan, Uttar Pradesh and Bihar, the Bhavai of Gujarat, the irreverent Tamasha of Maharashtra, the Bengali Jatra, the spectacular Yakshagana of Karnataka and Theyyam of Kerala, all of which narrate legends of local heroes, kings and deities. Martial art forms throughout the country have been stylised to quasi dance forms, notable among which are the martial dances of the north-eastern hill tribes, the Lazim dances of Maharashtra, the Kalaripayattu of Kerala, and the highly stylised masked Chhau dances of Orissa.

Together these dances have formed a vast reservoir from which the classical dances have drawn sustenance. There are six major classical dance styles — Bharata Natyam from Tamil Nadu, Odissi from Orissa, Manipuri from Manipur, Kathak from Uttar Pradesh, Kathakali, a classical dance-drama from Kerala and Kuchipudi from Andhra Pradesh. In their present format, their history cannot be traced back to over two to three hundred years, but they all have links with the ancient and medieval literary, sculptural and musical



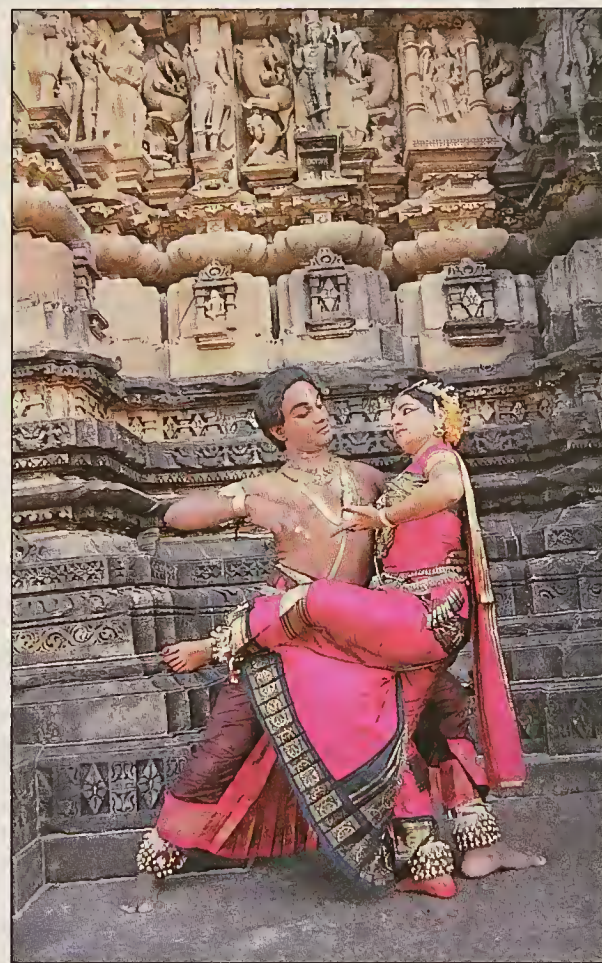
127. The lyrical Manipuri dance from the north-east

traditions of India and of their particular regions. They all adhere to the canons of classical dance laid down in the *Natya Shastra*, a second century BC text ascribed to the sage Bharata, to whom it was supposedly revealed by the Creator, Brahma. This defines the three principal aspects of dance, 'nritta' or pure dance, 'nritya' which uses mime and 'abhinaya' to express mood, and 'natya' or drama. Over the centuries, a complex repertoire of hand gestures, facial and body movements have evolved to convey with precision, subtle nuances of meaning.

Bharata Natyam developed in its present form about two hundred years ago as a temple dance dedicated to worship. Though it is essentially a solo dance, it was based on the traditional dance-drama forms of the region, the all male 'Bhagvata Mela' and the female folk operettas, the 'Kuruvanjis'. While its poses are based on early temple sculpture, it was given its thematic and musical content by the Bhakti poets and the musicians of the Tanjore courts of the 18th and 19th centuries. It was transformed into a performing art, largely through the pioneering efforts of Rukmini Devi Arundale, who founded the dance school, Kalakshetra, near Madras. This has produced several prominent dancers such as Yamini Krishnamurthy and Leela Samson. The other styles followed suit.

Kuchipudi, a folk dance-drama form from the village of the same name in Andhra Pradesh was elevated to classical status as recently as the seventies, under the guidance of guru Vempatti Chinna Satyam and prominent dancers such as Yamini Krishnamurthy, Raja and Radha Reddy and Swapna Sundari. The sensuous poses of the Odissi dance are similarly based on the temple sculptures of Konarak and Puri. It developed from the musical plays, the 'Sangita Natakas', and there are records from the twelfth century onwards of ritual temple dances and entertainments in village squares, today given expression by such eminent dancers as Sonal Mansingh, Madhavi Mudgal and Sanjukta Panigrahi. Its thematic and musical content is dominated by the twelfth century poetic work, the 'Gita Govinda.' Manipuri dance evolved in the eighteenth century with the advent of the Vaishnava faith, from earlier ritual and magical dance forms. The female 'Rasa' dances revolve around the Vaishnava Radha-Krishna themes, and feature both group ballets and solos. The body moves with slow, sinuous grace and the undulating arm movements flow into the fingers in a manner more reminiscent of the dances of south-east Asia than of the more vigorous, fast-paced Indian styles. In contrast, the male 'Sankirtana' dances, performed to the rhythmic beat of the Manipuri dholak, are full of masculine vitality. The north Indian dance style, Kathak, is completely different, with fast-paced twirling movements and intricate footwork. Originating in the Krishna-Radha folk dances of Mathura and Brindavan, it was refined to its present sophistication in the courts of the nawabs, and Islamic influence is quite evident. Today audiences are enthralled by Kathak maestros like Birju Maharaj and Uma Sharma. Kathakali, the dance-drama of Kerala, is completely different again. Spectacular, larger than life costumes and make-up give the performance a supernatural grandeur. It enacts epic themes with a highly stylised, sophisticated vocabulary of body movements, hand gestures, eye and brow movements.

Folk theatre and dance-drama were the common roots of both classical dance and theatre, the traditions of both of which were elaborated upon in the *Natya Shastra*. According to this text, there are three major theatrical categories, the heroic, the social and the farce. Kalidasa is India's most famous poet and dramatist, and his plays are still performed today. Nawab Wajid Ali Shah, the last ruler of Awadh, was a noted playwright and staged elaborate dramas at his court.



128. Radha and Raja Reddy, exponents of the Kuchipudi dance form from Andhra Pradesh

129. Alarmel Valli from the Pandanallur school of Bharata Natyam





130. The fast paced Kathak dance from Northern India

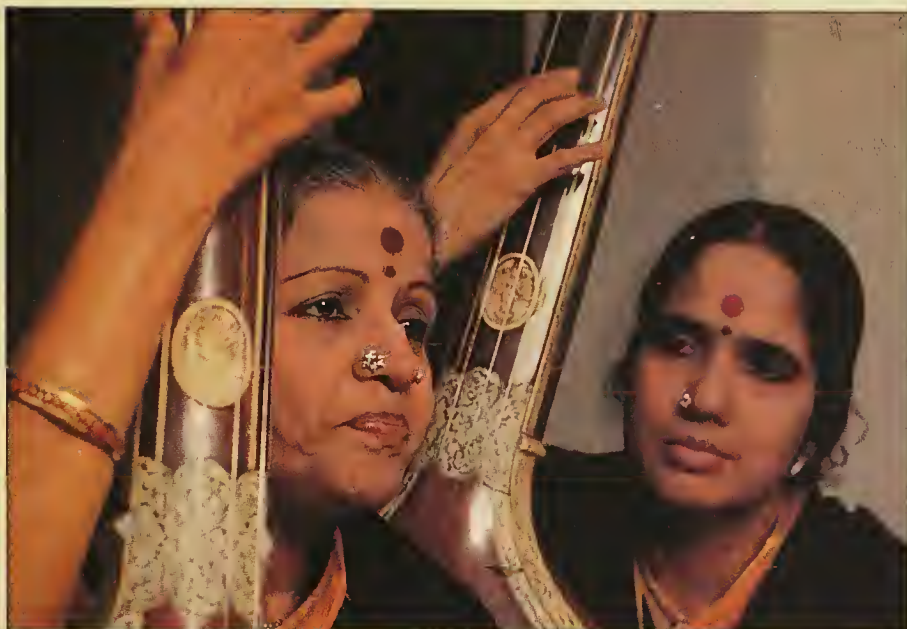
Classical Indian music, too, has evolved from folk roots. The heart of all Indian classical music is the 'raga', a Sanskrit term which literally means passion, colour and attachment, each raga having a single colour or mood. Most ragas today are highly refined and grammatised codifications of tribal and folk melodies. Each is a specific arrangement of notes, with strict rules of ascent and descent, prescribed resting places, characteristic phrases, and its own distinct ethos. Every raga is only sung at a particular time of day or season with which it is associated, and whose mood it invokes. The unique distinction of Indian music is that the musician is free to explore the limitless possibilities and nuances within the closely defined parameters of each raga. Thus no two performances are ever alike, and vary according to the mood of the musician, as well as the perceptivity of the audience, and the rapport that is established between the two.

There are two major traditions of Indian classical music, the north Indian 'Hindustani' and the south Indian 'Carnatic'. While both are based on the same fundamental concepts, the latter is distinguished by the use of a range of quarter tones, which play around the central note. While a wide variety of musical instruments are used, the human voice is considered the supreme instrument. The sitar is the best known instrument, but there are a host of others such as the south Indian veena, the sarod, santoor, the violin and tanpura, wind instruments such as the shehnai and flute which are especially popular in the north, and percussion instruments such as the tabla, the mridangam, ghatam, and jal tarang. All have evolved from simple folk instruments made from reeds, bamboo and gourds.

Celebrated Hindustani vocalists include Bhimsen Joshi, Kumar Gandharva, Bade Ghulam Ali Khan, Kishori Amonkar, Pandit Jasraj and the Dagar brothers while M.S. Subbulakshmi is the undisputed queen of the Carnatic style. Pandit Ravi Shankar has popularised the sitar all over the world. Other renowned artists include Chitti Babu on the south Indian Veena, Amjad Ali Khan on the sarod, Pandit Shiv Kumar Sharma on the santoor, Bismillah Khan on the shehnai, Hari Prasad Chaurasia on the flute, and the incomparable father and son duo, Alla Rakha and Zakir Hussain on the tabla.



131. Jugalbandi — A musical duet in progress



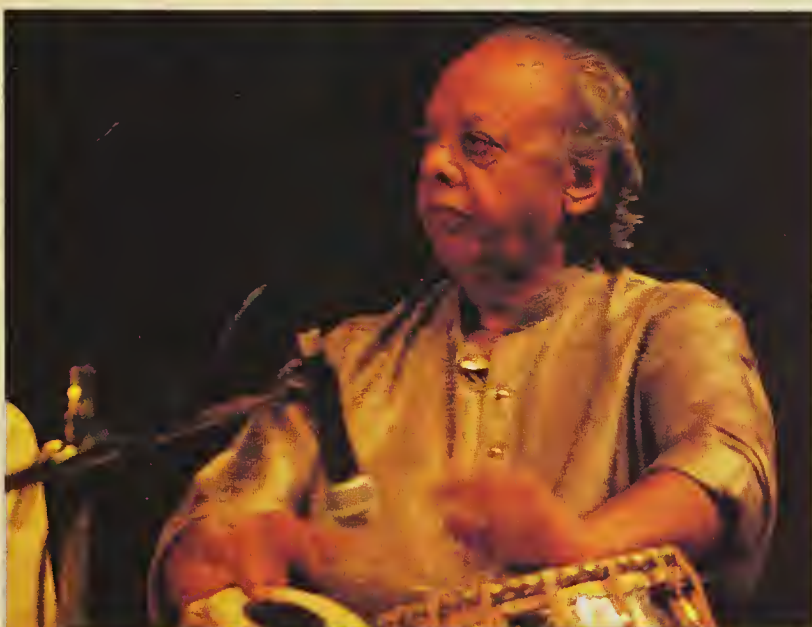
135. Kishori Amonkar, eminent Hindustani vocalist

132. M.S. Subbulakshmi, the first lady of Carnatic Music

133. Tabla maestro Alla Rakha

134. Duet with Carnatic musician Lalgudi Jayaraman (violin) and Hindustani sarod maestro Amjad Ali Khan

136. Bismillah Khan on the shehnai





137. Detail from the stupa (dome shaped monument) at Sanchi, an important site of Buddhist pilgrimage which contains the relics of the Buddha

India is studded with architectural monuments of great antiquity. Remains of the post-Harappan Vedic period have not yet been discovered — perhaps because they were constructed of perishable materials that decayed in the wet climate of the Gangetic plains. At any rate, the earliest remains of stone buildings are those of Buddhist monuments dating from the third century BC onwards, the most famous of which is the great stupa at Sanchi, constructed by Ashoka. The excavated caves at Ajanta, started at around the same time and completed by 650 AD, contain magnificent Buddhist paintings. At nearby Ellora, the Buddhist, Jain and Hindu caves contain masterpieces of sculpture, and were constructed between 600 and 1000 AD. Most impressive are the Hindu caves which contain entire temples carved out of the living rock. The mighty Kailasha temple consists of a huge courtyard 81 metres long, 47 metres wide and 33 metres high at the back, with the main structure rising up in the centre; its sheer size is overwhelming. It covers twice the area of the Parthenon in Athens, and is 1.5 times as high, and is decorated with a number of dramatic and finely carved panels. When one remembers that it was carved out of solid monolithic rock, with an estimated 200,000 tons being removed, it is without doubt one of the wonders of the world. So too are the fabulous Dilwara Jain temples near Mt. Abu in Rajasthan, constructed from the eleventh to the thirteenth centuries AD. The intricacy of the filigree marble carving is truly breathtaking; at times the marble becomes almost transparent!

Hindu temple architecture is without parallel for the exuberance of its sculptural decoration. The earliest Dravidian temples and rock-cut caves are those at Badami and Aihole in Karnataka, built by the Chalukyas between the fourth and eighth centuries AD. Farther south, the Pallavas constructed the exquisite shore temple at Mahabalipuram near modern Madras, and the temple town of Kanchipuram. Southern temple design, with its towering spire-like 'gopurams', reached its peak under the powerful Chola dynasty. The magnificent Brihadeshwara temple at Thanjavur is its crowning glory, its gopuram and adjoining structures alive with sculptural detail. Every centimetre of the surfaces of the twelfth century Hoysala temples at Belur and Halebid in Karnataka are covered with a staggering variety of deities, birds, animals, scenes from daily life and erotic sculptures. Also famous for their erotic sculptures are the temples of Khajuraho in Madhya Pradesh and Konarak in Orissa, both built at about the same time.

The Turkish and Afghan conquests of the thirteenth century onwards brought the entirely new Islamic style of architecture to the country, with its domes, arches and minarets. Qutub-ud-din Aibak, the founder of the Slave dynasty, built the first mosque in India, the Quwwat-ul-Islam, and also the famous Qutab Minar. The great Mughal emperor Akbar, built his new capital city of Fatehpur Sikri in an innovative fusion of Hindu and Islamic styles. Created by Shah Jahan as a symbol of his love for his queen, Mumtaz Mahal, the matchless Taj Mahal now symbolises India. Constructed of white marble, it is covered with delicate floral and geometric patterns of inlay work in precious stones. The expansion of the Mughal empire spread Islamic architecture to the Deccan. This period also saw the construction of numerous palace-fortresses all over Rajasthan, Maharashtra and Madhya Pradesh; these imposing structures which seem to be a part of the sheer hillsides from which they rise, are steeped in romantic tales of intrigue and deceit, valour and chivalry.

The British brought the Victorian Gothic style with them, which they used in public buildings in Bombay, Calcutta and Madras. In the early decades of the twentieth century,



138. Ruins of Nalanda University, Bihar



139. Ruins outside Jaisalmer



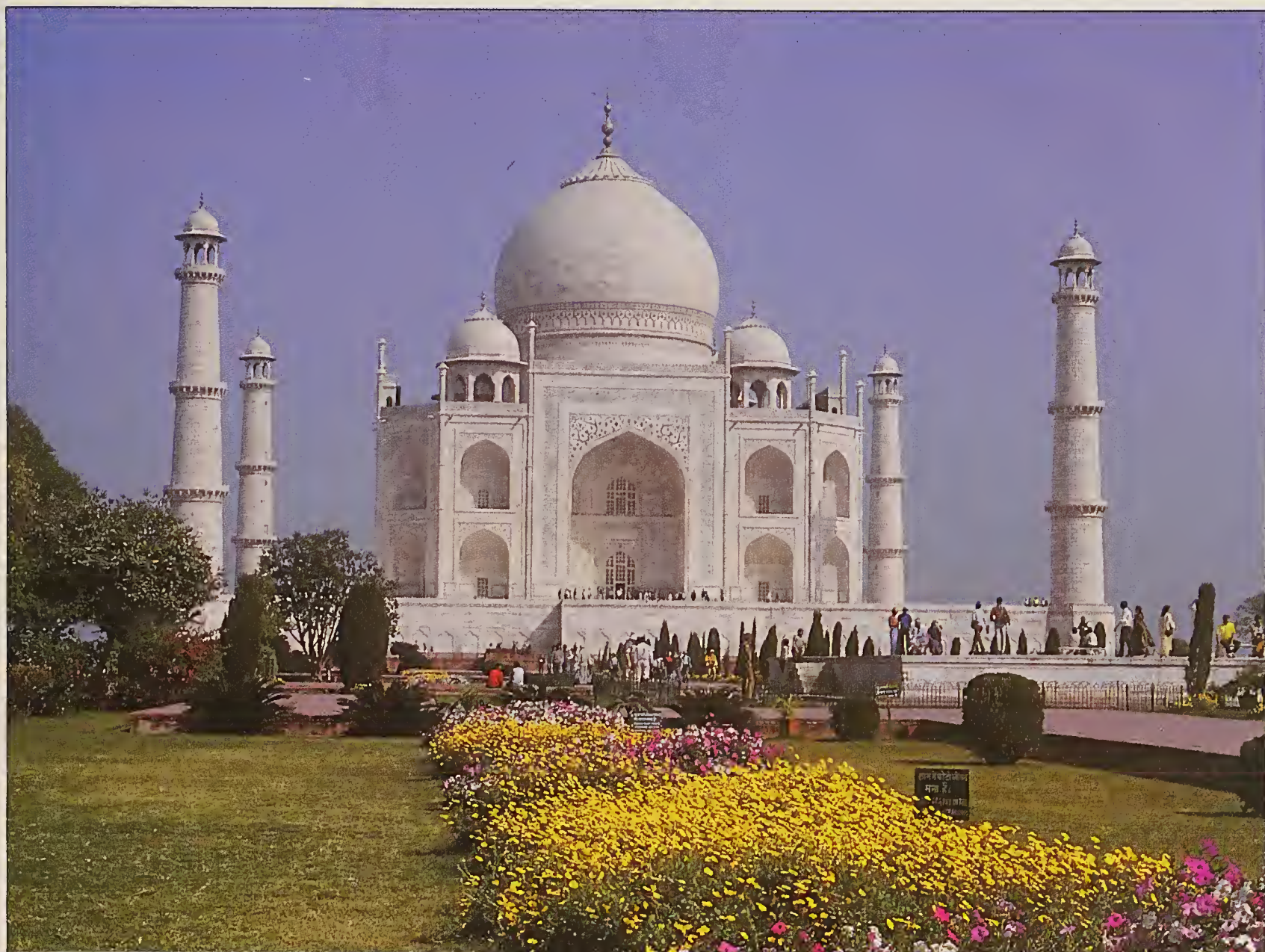
140. Details from temple carving at Halebid

Lutyens designed the imposing new capital of New Delhi in the neo-classical style, adorned with some Indian details such as 'chhatris'. Today, the architecture of India's modern cities draws on the International Style of modern architecture, of which the new city of Chandigarh, designed by Le Corbusier, is a major example. However, many young architects are turning to indigenous designs and materials for inspiration in an attempt to evolve styles more appropriate to Indian requirements.

As with all the arts, most Indian sculpture is of a devotional nature, or intended as part of a ritual or ceremony. A terracotta figurine of a Mother Goddess was found at the Indus Valley cities. Today terracotta, stone and brass images of the vast pantheon of deities are fashioned and worshipped with great devotion in every village and city. Along with these are images of birds and beasts of every kind. The act of creation is as significant as the finished object; 'I make a soul out of eight pieces' says a tribal village potter as he crafts a terracotta horse. To him, the horse is alive, and he allows it to be bought only after offering it incense and coconut in a small ritual. All traditional Indian art images, tribal, folk or classical, are similarly invested with the life-force. Each village in Tamil Nadu has a large open air shrine to Ayyappa, where huge terracotta images of the deity are flanked by his companions, horses, bulls and chariots, often brightly painted. Even in a busy metropolis like Bombay, one cannot walk a few hundred yards without coming upon a small shrine set in a wall or in the hollow of a peepal tree. Classical Indian sculpture is usually seen in conjunction with architecture. Among the earliest are the carvings on the four gates to the Sanchi stupa. Sculpture flourished under the Kushan dynasty in the first and early second century AD. The fusion of their sculptural style with the Hellenic style of the Seleucid empire gave birth to the Indo-Greek Gandhara style of sculpture which spread through most of central Asia. Stone carvings on temples celebrate the divinity and energy in all life forms, and are a profusion of plant, animal and human forms — indeed, it is difficult to say whether the sculpture adorns the structure, or whether the structure merely supports the sculpture! The casting of free standing bronze images was perfected under the patronage of the Chola kings of Tamil Nadu, and these traditional images are produced even today.

The earliest classical Indian paintings are the Buddhist wall paintings in the Ajanta caves. Illustrations on palm-leaf manuscripts of Jain and Buddhist texts, done in Gujarat around the twelfth century AD, are very similar in style to local folk wall paintings. These also influenced the stylised early Rajput miniature paintings. Under the patronage of the Mughals, Indian and Persian styles fused into the famous Mughal school of miniature painting. Painting 'karkhanas' or workshops flourished in Akbar's capital at Fatehpur Sikri. Artists trained at Mughal karkhanas joined the courts of other Indian rulers, and this led to the evolution of new hybrid styles such as those of Kulu and Kangra, Jaipur and the Deccan. The British imported Western classical art, with its concepts of naturalism, perspective and large scale oil paintings. Raja Ravi Varma adapted this style to Indian themes. While contemporary Indian artists are firmly rooted in Indian soil, they are also part of the international art movement. Prominent among these are Amrita Shergill, M.F. Hussain, Krishan Khanna, Tyeb Mehta, and Satish Gujral to name but a few.

Fabric weaving and printing are usually regarded as crafts, but in India they can justifiably be included among the arts, so fine and world renowned are Indian textiles; indeed, Indian silks and muslins have been prized around the world for centuries. The range and variety of Indian weaves is truly stupendous; virtually every tribe and every village has a particular pattern associated with it, and one can usually identify a person's tribe by the



colour and pattern of his garment. From the fabled gossamer fine muslin saris that can pass through a ring to earthy tribal shawls, from shimmering silks embroidered with pure gold thread to simple cottons with hand-blocked patterns, from sophisticated Jamawar shawls to rustic mirror-work embroidery, Indian fabrics are an unlimited treasure trove. Binding them all is unbelievably skilled workmanship and a vibrancy of colours and patterns unparalleled anywhere in the world.

Fine workmanship is the hallmark of all Indian handicrafts, such as the celebrated carpets of Kashmir and Agra, metal inlay work from Moradabad and silver inlay 'Bidri' work from Hyderabad, south Indian and Gujarati wood carving, ivory carving and palm mats from Kerala, marble inlaid with semi-precious stones from Agra, and exquisite jewellery in gold, silver and precious stones from all over India.

By far the most remarkable aspect of all Indian art, tribal, folk and classical, is its organic link with an unbroken living tradition that reaches back to the very roots of civilisation, to the first settled urban societies. This connection is still vital and evolving in many areas and in different ways as is seen from the recent elevation of Kuchipudi to classical status, a process which is now taking place with the lyrically sensuous Mohiniattam from Kerala, with research and new choreography being undertaken by such pioneers as dancers

141. Created by Shahjehan as a symbol of his love for his queen, Mumtaz Mahal, the matchless Taj Mahal now symbolises India

142. Jama Masjid, Delhi

143. Saligao Church, Goa

144. Shore Temple, Mahabalipuram

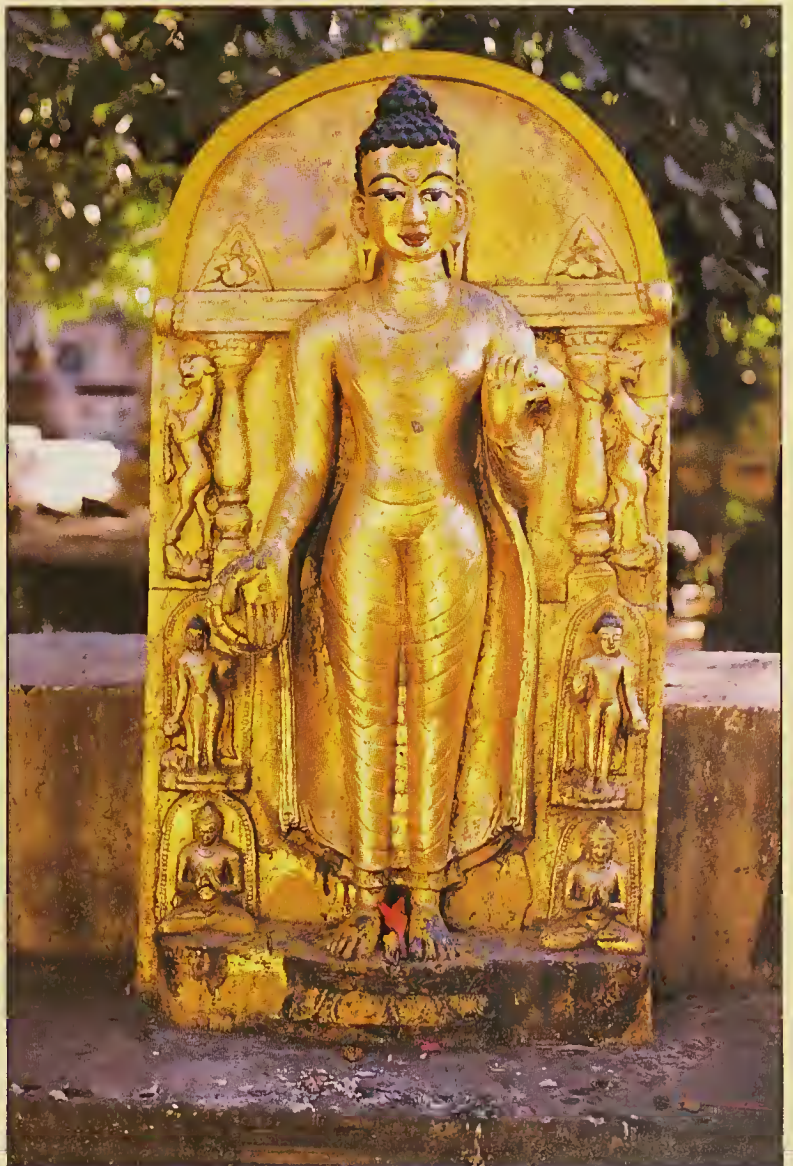




145. Patna Sahib Gurudwara, Patna

146. Buddha Statue, Bodh Gaya, Bihar

147. Statue of Lord Buddha at Bodh Gaya





148. *The making of the sari is a timeless art*

Kanak Rele and Bharati Shivaji. New folk melodies are continuously incorporated into the family of ragas by respected musicians such as the late vocal maestro, Kumar Gandharva and the eminent sarod player, Amjad Ali Khan.

Most exciting are developments in theatre — in 1972, Vijay Tendulkar's Marathi play 'Ghashiram Kotwal' made waves by its use of traditional folk forms in modern contemporary theatre. This ushered in an era of creative experimentation that still continues under directors such as B.V. Karanth, Habib Tanvir, Vijaya Mehta, Kavalam Panikkar, Bansi Kaul and Rattan Thiyam.

Serious Indian cinema too has explored the use of traditional themes to illuminate contemporary problems. In the 1982 film 'Bhavni Bhavai' Ketan Mehta used a traditional folk story and the Bhavai folk theatre form from Gujarat to comment on the issue of untouchability, while Shyam Benegal's film 'Kaliyug' placed the epic 'Mahabharata' in a modern context. The Indian film industry is the second largest in the world, and Indian films have been popularised, not just within the country, but also in Asia, Africa and some European countries by directors such as Raj Kapoor, Guru Dutt and Bimal Roy. Serious film makers have won international acclaim, the most celebrated being that giant of world cinema, the late Satyajit Ray. A generation of younger film makers have produced films of social relevances and artistic merit in Hindi and all the other regional languages.

The plastic arts are also experiencing a period of growth and experimentation with a fusion of the traditional and the modern idiom in form, content and style: trains, aeroplanes and gun-toting soldiers rub shoulders with the more traditional camels and elephants in the wall paintings of Shekhawati, and scenes from modern life are sometimes incorporated in the designs of the traditional Baluchari saris of Bengal, which have now adopted new, more efficient jacquard looms; conversely, modern artists sometimes use tantric, tribal or folk references in their canvases. Thus the contemporary art scene in India is an exciting, vibrant and dynamic kaleidoscope of traditional and modern, religious and secular, regional and universal, folk and classical elements interacting in a profusion of scintillating patterns.

149. *The genius of Indian cinema, Satyajit Ray*





Rural Development

Rural Development

The archetypal picture of an Indian village is of a simple, idyllic community where Time stands still; mud huts cluster around the village square or 'chaupal', where village elders gather under the shade of a venerable peepal tree to smoke 'hookah' pipes and discuss village affairs, children play right in the middle of the rutted main street, and the tinkle of cow bells announces the return of the herds from pasture. At first glance, this picture does not seem to have changed much over the centuries, but surface appearances are deceptive; a closer look at daily life reveals that the village is connected to the twentieth century by more than just a vast rail and road network.

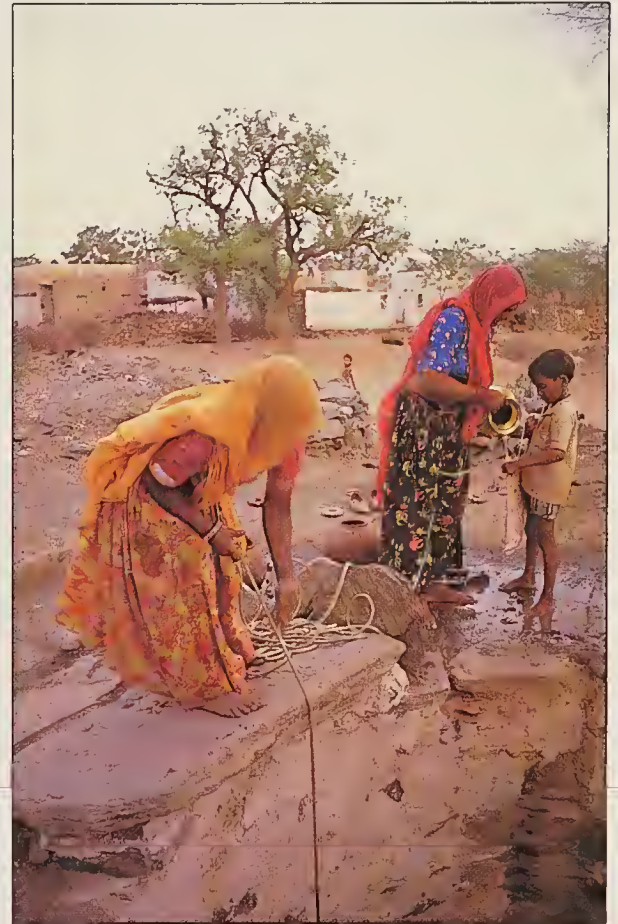
Let us look at a day in the life of a typical village family. Madanlal lives with his wife, Maya, and their two children in an extended family, which includes his parents and his younger brother. Extended families are the norm throughout India, in both rural and urban areas, though nuclear families are becoming more common in the cities. The importance of the family and of the community is one of the most fundamental and cherished of Indian values, for all religions and regional groups; they provide a vital social and economic security net, and an Indian can count on his family for support in times of need. Parents, elders and teachers are respected members of the community, and their advice and blessings are sought in all important matters. The vast majority of marriages in all communities and religions are arranged by the family and community elders. Large extended family networks gather to celebrate important events, such as marriages and births, with music and colourful ceremonies.



150. The panchayat, or village governing body meets to discuss issues concerning the community



The day begins early, before daybreak. Although electric power came to the village some years ago, Maya's home is lit by power from the community 'gobar-gas' or bio-gas plant, which also supplies cooking gas to her new smokeless 'chulha' or mud cooking range, on which she prepares the morning meal. Both the gobar-gas plant and the chulha are appropriate-technology systems that were indigenously designed and developed in order to recycle waste, conserve energy and provide economical and ecologically sound alternative sources of energy and fertilisers. Her daughter, Meena, goes to the village tap to fetch the day's supply of water. Piped water is a recent addition to the village, thanks to



151. The technology mission on drinking water ensures access to safe sources of drinking water

152. Women drawing water in the traditional style



153. The search for cleaner and renewable sources of energy has given an impetus to solar technology

the Technology Mission on Drinking Water and Related Water Management, set up by the Government to provide potable water to all villages.

Soon the children are ready for school. Her six year old son, Mohan, goes to the local primary school, but ten year old Meena joins her friends to catch a bus to the middle school in the next village. Since the First Five Year Plan, education has been a priority area. Today 80% of homes in both rural and urban areas are within one kilometre of a school. Schooling is free upto class eight in most States. In the year 1994-1995 there were some 581,000 primary and junior schools, 155,700 middle schools, 88,400 high schools, 5639 colleges of general education, 1125 colleges of professional education, and 213 universities in the country. At school, the children will get the benefit of a welfare scheme that offers



154. As in other areas of development, the Literacy Mission also lays special emphasis on the girl child

supplementary nutrition and regular immunisation and medical check-ups. At first Maya was hesitant to send Meena to school, but was persuaded to do so by her neighbour, Farida, both of whose daughters attend school. Between 1951 and 1994, there has been a dramatic increase in the number of girls attending school, from 5.4 to 46.4 million in primary school, from 0.5 to 15.7 million in middle school — and from 0.2 to 10 million in high school. In 1986 Parliament adopted the National Policy on Education, which aims to achieve universalisation of primary education. Towards this end, Operation Blackboard has covered 380,000 schools out of 570,000 in the country. A new mission has also been launched to provide free education to all children upto class VIII by the year 2000. Adult literacy is being tackled through the Total Literacy Campaign. About 5 million volunteers are working to teach the alphabets to 50 million people.



155. Traditional teaching at Shantiniketan, the university set up by Rabindranath Tagore

After breakfast, Madanlal's younger brother, Lakkhanpal, leaves for work. He is employed in a consumer goods factory in the industrial zone about five kilometres away. This was established by the Government twelve years ago as part of its strategy for industrial decentralisation. A comprehensive infrastructure of power, water and transport links, plus financial and tax incentives encourage industry to move to remote, underdeveloped areas, and to train local people in industrial skills. Lakkhanpal was trained as a machine operator, and has now worked his way up to the responsible position of foreman. The Government has also instituted several economic and employment programmes and policies to improve the socio-economic position of Scheduled Castes and Scheduled Tribes, who together constitute nearly 25% of the population.

Madanlal goes off to plough their fields with their new Indian made tractor, recently acquired through a loan from the local branch of the State Bank of India. The easy



156. At a non-formal education centre in a desert village in Bikaner District

accessibility of banks, and loans for rural development are part of the Government's Integrated Rural Development Programme, which also includes schemes to promote rural self-employment and to provide training to rural youth and women. The National Rural Employment Programme (NREP) creates direct wage employment opportunities through the construction of valuable community assets such as dams and roads. The Jawahar Rozgar Yojana seeks to ensure 180 man-days employment to at least one member of all families below the poverty line.

Meanwhile, Maya attends to her household chores. After feeding the family's two cows and cleaning out their shed, she gathers their dung and takes it, along with all the other organic household refuse, to the community gobar-gas plant. This plant and the community water tap have considerably lightened her daily work-load; she no longer has to undertake the time-consuming and arduous tasks of gathering firewood from the forest, and fetching water from the river. As a result of this, and also the active participation of the villagers in the government's afforestation programme, the forest has gradually started to regenerate itself before their very eyes. Now that water is available in their homes, the villagers no longer have to use the river for bathing and washing clothes and utensils, so the river is now much cleaner.

On her way home, Maya drops in at the home of her friend, Farida. It was she who had persuaded her to adopt family planning measures to space her children. At the local clinic, Maya had seen puppet shows on family planning and had been impressed by the arguments in favour of smaller families. After their second baby, she and Madanlal had agreed that their children would have a better chance of success in life if they limited their family, so Maya had herself sterilised at the local Primary Health Centre. Family welfare and population control are crucial to the country's economic development, and the government has given top priority to its Family Planning Programme. The small family norm is promoted through TV, films and puppet shows, and by March 1994, 45.4% couples were protected by approved family planning methods. The birth rate dropped from 41.2 per 1000 in the decade 1961-1971, to 29 per 1000 in 1993.

A high rate of infant and child mortality encourages large families, so good health for the mother and child are essential pre-requisites for the success of the Family Planning Programme. The success of the National Health Programme is illustrated by the drop in infant mortality rates from 146 per 1000 four decades ago to 80 per 1000 in 1993. The Child Survival and Safe Motherhood (CSSM) programme has set a target of reducing the infant mortality rate to less than 60 per 1000, maternal mortality to less than 200 per 100,000, and child mortality to less than 10 per 1000 children by the year 2000. During the period 1950-1993, the life expectancy of the average Indian has increased dramatically from 32 to 61 years, an eloquent testimony to the expanding health care services in the country.

With the success of the National Malaria Eradication Programme and the National Tuberculosis Eradication Programme, and with the total eradication of smallpox in 1975, the country launched the Universal Immunisation Programme in 1985. This has protected children against six vaccine-preventable diseases — diphtheria, tetanus, whooping cough, tuberculosis, polio and measles.

The basic unit of health care in the country is the Primary Health Centre. While none existed in 1950, there are now 207,000 such centres and sub-centres. An increasing



157. A technology mission for universal immunisation seeks to eradicate six vaccine-preventable diseases



158. Village belles enjoying the learning experience at school



159. Training session to teach village women the internal layout of the smokeless 'Chulha'

number of doctors and health workers are being sent to these centres, and about 410,000 health guides and 586,000 trained midwives serve in rural dispensaries all over the country.

Medical research and education have also received significant attention since 1947. There are now 171 medical colleges and 11 other institutions of medical education, from which nearly 14,000 students graduate annually. In addition, some 8,200 nurses qualify every year from 367 nursing institutes.

After lunch it is too hot to work in the fields, so Madanlal and Maya both go to the Community Centre where there is a community television set. Here, Madanlal and his friends watch special programmes for farmers on improved techniques of agriculture, animal husbandry and aquaculture. Meanwhile, Maya and Farida attend adult literacy classes run by the National Literacy Mission as part of its campaign to achieve universal literacy. The Eighth Five Year Plan envisages a coverage of nearly 120 million adults by 1997-1998, with the literacy rate going up to 80%-85% in the following five years.

To lift education out of its isolation, the Human Resource Development Ministry coordinates activities with the Departments of Education, Culture, Youth Affairs and Sports, Women and Child Development, and Arts. In order to help in the retention of literacy skills, Jan Shikshan Nilayams (Public Education Units) are being set up in both rural and urban areas, and there are 'anganwadis' or activity centres for women which offer non-formal education. In pursuit of the goal of Education For All (EFA) by the turn of the century, several states have open schools under the Non-formal Education Programme, for school drop-outs, children who cannot attend whole-day school, housewives, the unemployed and working adults.

The state of Kerala was the first to achieve universal literacy, and now Pondicherry and several districts in other states have followed suit. The 1991 census showed that literates (441.6 million) exceeded illiterates (404.4 million) in the country. The literacy campaign is



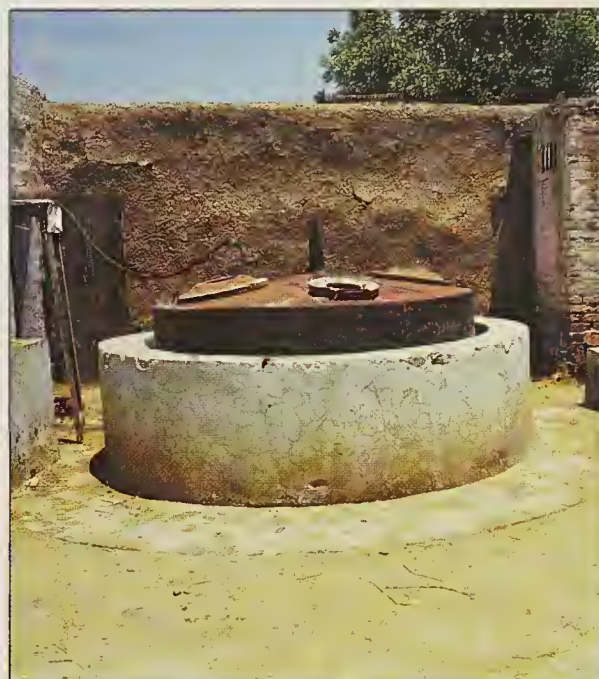
160. Non-formal education makes learning more fun at a centre near Delhi



fast gaining momentum, with school and college students being drawn in through the 'each one teach one' scheme. When her daughter returns from school, she will help Maya to practise her new reading skills. In the evening, after he returns from work, Lakkhanpal has to attend a meeting of the 'Gram Panchayat', or village governing body. Mahatma Gandhi called them the "village republics" and they are the best means of spreading democratic values to the grass-roots of Indian society. The system of 'Panchayati Raj' was introduced in 1959. Panchayats operate at three levels — the district, the block and the village. Their function is to advise the government on the implementation of rural development programmes, and to represent local issues.

Before leaving, Lakkhanpal reads a letter that has just arrived from their youngest brother, Gangaram, who is studying at the degree college in a nearby town. Most rural families have at least one member either studying or working in urban areas. They return with exciting tales of fast-paced city life, where time is measured in minutes, instead of in weeks. The villagers also have a window on the world outside the village through television. After the day's work is over, the entire family gathers around the community TV set. Cultural programmes and documentaries give them an idea about lifestyles and important issues and events in different parts of the country, and help in the process of national integration. They are dazzled by the glamour of city life, but also amused, and sometimes a bit shocked by the strange ways of city folk. Most popular of all are the musical sequences from and re-screenings of movies. Popular cinema has proved to be an effective cultural binding force throughout the country. Hindi films have spread knowledge of the language among even the most diehard regionalists, and the latest film songs are on everyone's lips, from pre-school child to grandparent, from remote hamlets to crowded city restaurants. And so, humming the latest hit tunes, Madanlal and his family return home for the night. This, of course, is an idealised picture of life in a hypothetical village. It does, however, serve to illustrate the thrust and scope of the Government's efforts to bring socio-economic development to the rural areas, and thus, to the nation.

No government, however dynamic and effective, can alone perform the herculean task of transforming a colonised country into a modern, prosperous nation in a few short decades; to do so it must have the full and vigorous participation of its people. A heartening sign is



161. Literacy opens the doors to self-reliance and a promising future

162. Biogas plants recycle waste, conserve energy and provide economical and ecologically sound sources of energy and fertilisers

the proliferation of Non-Government Organisations (NGOs), which are non-profit, autonomous private bodies, active in the fields of economic, social and cultural development and awareness generation. A majority concentrate on the advancement of women, children, the weaker sections of society, the environment, and other vulnerable areas of concern. It is in the emergence of spontaneous, voluntary Peoples' Movements that the future lies.

Two examples will suffice. In the Uttarakhand region of the Himalayas in Uttar Pradesh, uncontrolled felling of trees by rapacious forest contractors, for timber and paper mills in the plains, had led to the decimation of the forest cover of the area, and to the destruction of much of its wild life. The first heavy rains of the season would wash away the top-soil of entire denuded mountain slopes, causing dangerous landslides. The women of the area, deprived of their source of firewood, spontaneously organised themselves to protect the forests. They would 'chipko', or cling to the trees to save them from the contractors' saws, an action that gave the 'Chipko Movement' its name. Under the charismatic leadership of Chandi Prasad Bhatt and Sunderlal Bahuguna, the movement spread throughout the region and made headlines, not only in India, but among environmentalists around the world. It succeeded in getting the Government to restrict the felling of trees, and extensive afforestation drives are now in progress, with the active participation of the villagers. Their commitment should see the Himalayas once again clothed with a green mantle of trees. It has also inspired similar movements in other areas, such as the Appiko Movement in the Uttar Kannada district of Karnataka.

The second example comes from Maharashtra. Ralegaon Shindi was once an unremarkable village, much like any other in the drought-prone Ahmednagar district, with an economy based largely on illicit liquor. Excessive tree felling for firewood had denuded the surrounding hills, and any rainwater would quickly run off down the bare slopes, instead of being soaked into the ground, thus causing the depletion of the water-table. A series of bad monsoons would leave the area parched and barren, ponds and streams would



163. The restoration of the balance of nature through afforestation programmes is being pursued in both government and non-government agencies. Seen here, a three year old community plantation



disappear, and even the wells would run dry. An impoverished peasantry would migrate to the fringes of the urban economy, there to swell the ranks of the urban unemployed and underemployed.

164. Women participate actively in a meeting of the 'Chipko' movement in Garhwal

Then in 1975, Anna Hazare, took early retirement from the army and returned home to the village, determined to reverse this state of affairs. He motivated the villagers to undertake a series of measures to restore the balance of nature. Using Government funds and voluntary labour, they constructed earth dams across the streams, planted over three hundred thousand trees provided by the Department of Social Forestry in order to aid soil conservation, and constructed bio-gas plants and common toilets for the easy collection of human waste and the production of eco-friendly energy and fertiliser.

Now the water table has risen, the wells and tanks have filled up, 70% of the land is irrigated and today Ralegaon Shindi is a green oasis and a shining example of what can be achieved through community self-help in cooperation with the Government. Recognising the success of this effort, the Government of Maharashtra now sends senior administrative officials to the village for a week's training under the Integrated Watershed Programme, and villagers from surrounding areas come to see how they can apply these measures to their own settlements. If local initiatives such as these can be replicated around the country, and the creativity of the people can be liberated, there is every reason to be confident that the government and the people will together put their best foot forward into the twenty-first century.

